



DR. WEATHERHEAD  
ON  
HEADACHES

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A  
TREATISE  
ON  
HEADACHES.

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A

TREATISE  
ON  
HEADACHES,  
THEIR VARIOUS  
CAUSES, PREVENTION, AND CURE.

BY

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“Morbi notio est initium morbis mederi.”—GALEN.

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TO

ETIENNE GEOFFROY-SAINTE-HILAIRE,

*Member of the Institute of France,  
Professor-Administrator of the Museum of Natural History at the  
Jardin du Roi,  
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Moscow, Haarlem, Mayence, Marseilles, Bordeaux, and  
many other Learned Societies,  
&c. &c. &c.*

AS A SMALL TRIBUTE OF ESTEEM AND RESPECT FOR HIS EMINENT  
VIRTUES AND DISTINGUISHED TALENTS AND ACQUIREMENTS,  
AND OF GRATITUDE FOR MANY KIND PROOFS  
OF HIS FRIENDSHIP,

The Second Edition of this Work

IS INSCRIBED,

BY HIS SINCERE AND OBLIGED FRIEND,

G. HUME WEATHERHEAD.

LONDON,  
63 Guildford Street, Russell Square.



## P R E F A C E.

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THE circumstance which first suggested to the Author to write on Headachs, was that of having suffered from them severely himself. Very many of the following observations, therefore, are strictly practical, and deduced, in a great measure, from personal experience and reflection.

Though headachs frequently partake of a mixed character, in which two or more of the varieties are combined, or change, by induction, into one another ; yet the writer conceives that these complex forms of the disorder will be better understood by treating of them separately, and noting the most distinguishing characteristics of each.



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RULES AND OBSERVANCES FOR THE PREVENTION OF HEADACH.—Clothing; Exercise; Diet; Early Rising; Obviating Habitual Constipation; Regimen of the Mind; Effects of Travelling.

## A TREATISE, &c.

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### INTRODUCTORY OBSERVATIONS.

*On the Peculiarities of the Circulation of the Blood within the Brain; with an Exposition of some of the recent Discoveries of Experimental Physiology and Pathological Anatomy in determining the various Functions of its Parts.*

WHEN we examine the manner in which the blood circulates within the head, we perceive peculiarities adapted to the regulation of its impetus, differing from that observed in any other part of the vascular system. The quantity of blood which circulates in the brain is larger in proportion than in most other organs of the body; whilst the delicate nature of its structure and functions requires that the general force of the circulation should be subdued before entering its substance: and this purpose we see accomplished in the three following ways:—first, we observe that the momentum of the blood's current is lessened by its ascending against gravity in the upright posture — the position of the body in

which exertion is usually performed;—secondly, a similar effect is produced by the angles which both the carotid and vertebral arteries make before they reach the interior of the head;—and thirdly, this end is further attained by the inordinate disproportion between the area of the branches of these two arteries and that of their trunks.

The great consideration which nature evinces in diminishing the impetus of the blood on the brain is beautifully illustrated in ruminating animals, where, from the dependent position of the head in browsing, the circulation within it would be otherwise so apt to become disordered:—I allude to the subdivision of the carotid artery within the pars petrosa into a multitude of branches, and their reunion afterwards, before emerging from the carotid canal and entering the brain, to be again subdivided.

This curious arrangement of the vessels, to which there is nothing similar in all comparative anatomy (except in the iliac arteries of the sloth), was observed as early as the time of Galen, and by him first called the *rete mirabile*.

Another peculiarity in the circulation carried on in the head, is the mode in which the blood is returned from it. Most of the veins of the brain terminate in sinuses; and the mouths of many of

them, as was first observed by the illustrious Haller, open into the sinuses, in a direction contrary to the current of the blood; and, while in other parts of the body corresponding arteries and veins usually run side by side, it forms another peculiarity of the encephalic circulation, that the venous blood should be returned through apertures in the cranium distinct from those by which the arteries enter.

From the structure of these sinuses, it is evident that the blood within them can be propelled by the *vis à tergo* alone, since their structure can only afford protection to the current of blood; but is totally incapable of forwarding it.

Had the veins proceeded and terminated in the ordinary way, the pressure of the brain at the basis of the cranium, in the upright posture, must have put a stop to all circulation through them; and in a recumbent position there would have been the same result on any other part of the head subject to this incumbent pressure.

The alternate contractions and relaxations of muscles in action produce an effect within the blood-vessels analogous to the movements of the piston of an exhausting pump: the vacuum produced by the action of the heart itself is similar in effect—that of contributing to the different agencies, physical and vital, employed in keeping

up the currency of the blood ; the agency is the same, and the only difference consists in the manner in which this agency is exerted. The muscular fibres of the heart produce the same vacuum within themselves in a direct manner by their contraction, as the muscles do indirectly by their compression of the contiguous blood-vessels ; and I may point out this one curious circumstance, that while the contraction of muscles forwards the arterial blood, it restrains the course of the venous, whereas exactly the reverse ensues from their relaxation. That muscular contraction impedes the current of blood in the veins, is obvious from the swelling of all the superficial veins in every powerful and prolonged exertion.

But there are other natural actions of the body which temporarily impede the return of blood from the brain, as that of expiration, and more particularly if this be both prolonged and accompanied with some violent general effort of the muscles. Now, if the effect of this, which is congestion, had been thrown on the veins alone,—which would have been the case had there been no sinuses,—rupture and extravasation would have been much more frequent than they are ; and hence apoplexy and palsy, their consequences, would have been more common. As it is, these two diseases are of frequent occurrence from

rupture of the small and tender veins of the brain, unsustained, as they are, by any encompassing muscles.

Nature, we observe, relieves the different lobes of the brain as much as possible from self-incumbent pressure, by means of the duplicatures of the dura mater, known by the name of the falx and tentorium. These membranous processes likewise serve to protect the hemispheres from pressure when undue quantities of fluids accumulate in the ventricles, and still more so when the pressure is made by a tumour.

The substance of the brain, it is to be recollect, is incompressible ; and therefore when any extraneous fluid — whether blood or serosity — lodges in any part of its structure, if poured out gradually, either the cranium must yield at the sutures and expand, or the substance of the brain must be diminished by absorption : this is, in fact, what takes place ; but when it is effused or extravasated suddenly, it is evident that a quantity of blood less by the bulk of the fluid so effused must circulate within the head. Now let us consider the necessary consequence of this : — the force of the heart continuing undiminished, the same quantity of blood is thrown up to the head ; but (as I have already shewn) it cannot *all* enter the substance of the brain : undue pressure must

therefore be the consequence, caused by the resistance from within, where the effusion or extravasation exists, and the impulse from without, where the blood is striving to enter. The principle of pressure is that in fact whence we deduce the rationale of all the symptoms ensuing from an oppressed brain.

The brain was the subject of dissection as early as the time of Democritus and Anaxagoras, now nearly three thousand years ago; and we find certain of the Greek philosophers occupying themselves with points of physiology connected with it. It was, for example, a very early disputed point, whether the brain produced the spinal marrow, or the spinal marrow the brain. Plato held the first of these opinions; whereas Aristotle denied that there was any connexion between the two. In more modern times, Bartholin and Malpighi promulgated the notion that the spinal marrow was the root of the brain; Malpighi taking the lead in asserting that the spinal chord was the part first formed in the cerebro-spinal axis of the nervous system: but as well might it be asserted, that the heart proceeded from the aorta, the latter being the part which appears first. A physiological fact of common observation demonstrates that there can be no justness in such a supposition, since we

often have occasion to remark that, while changes in the healthy state of the brain suspend, or diminish, or annihilate the powers of the spinal marrow, morbid alterations of the latter do not at all influence the special functions of the brain. In reality, it is the sanguineous system which primarily forms, as it continues afterwards to restore, all the parts of the body; and in rigorous conformity with its developement we find the formation of the embryo to proceed.

Erroneous opinions have been entertained regarding the period when the brain attains its full developement, many believing that the growth of the brain and body are simultaneous and correspondent. Soemmering thought it reached its full size at three years of age; while Gall and Spurzheim assert that the growth of the brain is only terminated at about forty. The more accurate observations of Sir William Hamilton have shewn it to be otherwise, proving that in man the encephalon attains its full developement at about seven years of age. The cerebellum, in relation to the cerebrum, comes to its full proportion in about three years. In the female it is in general considerably larger, in proportion to the brain proper, than in the male; and the same eminent author ascribes the whole difference of weight between the male and female brain to lie in

the brain proper, the average weight of the male being 3 lbs. 8 oz.; that of the female, about 4 oz. less.

The specific gravity of brain continues the same at different ages: neither does it vary in madness; but in fever it often does, and that remarkably.

In opposition to the received opinion, Sir William Hamilton maintains that the cerebellum has a greater specific gravity than the brain proper; and he is inclined to believe, with the ancients, that the cerebellum is also the harder of the two.

The common doctrine, that the brain of the African, and especially that of the negro, is much smaller than the European, is erroneous. Upon an examination made by Sir William Hamilton of the capacity of two Caffre skulls, male and female, and of thirteen negro crania, (six male, five female, and two of doubtful sex,) the brain of the African was found equal to the average size of the European. This interesting fact is a refutation of the libel, which would sink the unfortunate negro in the scale of creation, and vindicates the dignity of human nature, in opposition to those debasing doctrines, which, founded on facial angles and the like, would too closely link a portion of the human species with

the upper order of the brute.\* On the other hand, we know that the brain of the ox does not weigh more than one-fourth of the human brain, while the weight of the entire animal is often more than six times that of man: in other words, the brain of a man is, in proportion to his weight, twenty-four times heavier than that of an ox.

Among the prying researches of philosophy to elucidate mind by the examination of its organ, chemistry has even subjected it to the assay of the crucible. Fourcroy, in 1793, shewed that the brain contained in its composition, besides much water, a matter analogous to albumen, and various phosphates. Ten years later, Jourdan proved that the brain, when incinerated, gave free phosphoric acid, although it afforded none in the recent state. Vauquelin, in 1812, was the first who ascertained that the substance of brain contained pure phosphorus united with the elements of the animal matter. Later still, M. John endeavoured to shew that the phosphoric matter

\* At the last distribution of the prizes of the Concours-général of the Colleges of the University of Paris, under the presidency of the Minister of Public Instruction, and attended by the Archbishop of Paris, M. Tiers, and other ministers of the crown, it was one of the African race—Julien Gerard, a native of Guadalupe—who obtained the prize of honour of philosophy, and who last year gained the prizes of honour in Latin and French composition.

was peculiar to the brain of man ; and M. Couerbe has recently maintained that its existence in just proportion is absolutely indispensable to the full and perfect exercise of the intellectual functions : in excess, it produces madness ; in deficiency, idiotism. Regarding the correctness of the latter circumstance, in its present hypothetical state we will not venture an opinion ; but M. Couerbe is certainly entitled to credit for one discovery he has made—he has been the first to detect sulphur as a component of brain.

Before concluding these introductory remarks on the brain, I may notice some new views and facts advanced by M. Serres\* in elucidation of the office of the fifth pair of nerves.

It is the object of this ingenious physiologist to shew, that to this set of nerves exclusively belong the instinctive functions ; and his illustrations of this opinion are highly curious and interesting.

M. Serres commences by stating the fact, that in animals, in proportion as the brain decreases in size, the proper encephalic actions diminish ; while, on the other hand, to compensate this deficiency, the fifth pair of nerves are found to become more developed, and instinct, at the same time, becomes more powerful. In fact, the ratio

\* Anatomie Comparée du Cerveau, t. ii. p. 87, et passim.

is exactly in the inverse,—the deficiency in the one case, both as to cause and effect, being supplied by the increase in the other. Hence we find, that in the invertebrated animals which have no brain, the first set of actions, the encephalic, cease altogether, and that the animal provides for all its wants under the sole guidance of instinct, effected through the agency of nerves corresponding to the fifth pair. It is in this class of living beings, where the brain disappears completely in the organisation of the animal, and is replaced by the fifth pair, that we perceive the instinctive actions manifested in the highest degree. All their movements have the distinguishing character of being purely instinctive: they repeat them so exactly, and, I might say, almost so necessarily, even when the results appear so astonishing to us, that it becomes manifest that the will has nothing to do in their accomplishment, and that consequently all their actions are simple organic effects. If, then, their nervous cephalic system is represented by the ganglionic system of the fifth pair, we may fairly infer that these are the nerves which are the organs and seat of instinct among animals generally.

We see this curious physiological and psychological fact beautifully confirmed, by observing that among the mammiferi the encephalic faculties

decrease in a ratio with their brains; while their instinctive powers increase in a corresponding proportion, the one balancing the other.

These views throw an entirely new light on what has been attributed to a superior intelligence in certain classes of animals, which, if examined by the light of comparative anatomy, will be proved to be instinctive acts in strict relation with the greater or less developement of the fifth pair of nerves. The ingenuity exemplified by the seal, the beaver, and the bee, are among the surprising phenomena of nature, and could have been elucidated only by comparative anatomy. Of the first two, were their actions attributable to intelligence, and this dependent on the brain, the developement of this organ ought to be nearly the same in both: indeed, if the semblance to intelligence be the standard by which we are to be guided, the beaver ought to have much the larger brain of the two. But the fact is not so: compare their brains, and an immense difference will be found in their sizes, the beaver possessing much the smaller.

But if the acts of industry and ingenuity thus performed be instinctive, and the fifth pair of nerves be the organ of instinct, then these nerves in the two species of animals ought to correspond in developement; and this is exactly the fact.

The seal and the beaver are remarkable for the large developement of the trifacial nerve; indeed, the beaver is conspicuous above all other of the mammiferi for the size and extent of this nerve, and we know that it surpasses them all in its instinctive faculties. Beavers are to the vertebrated what bees are to the invertebrated animals; and in both, the effect and ascribed cause are relatively proportionate. The nerve corresponding to the fifth in animals is largely developed in the bee.

When we call to mind, that in the formation of the nervous system the developement proceeds from the circumference to the centre, we shall perceive the reason why, in the primitive formation of the fifth pair, the instinctive actions in animals constantly manifest themselves before the encephalic. It is from this circumstance that we are enabled to explain how monsters born without any brain take the breast, open and shut their eyes, and perform various other actions which we are accustomed to attribute exclusively to the brain. Dissection has shewn, in all these cases, that the fifth pair of nerves were very largely developed, and their two ganglia united together, serving as a centre of insertion to all the nerves of the senses. The first of the actions mentioned, that of taking the breast, proves the operation of

an instinctive faculty, notwithstanding the total absence of brain; and the second no less establishes the independence of the eye (may we say vision?) on the presence of the optic thalami. The mole has no optic nerves, and yet every naturalist knows that the mole sees—a fact established by the highly interesting and ingenious experiments of MM. Geoffroy St. Hilaire, Dumeril, and Blainville. In fact, the nerve of vision in this animal is a branch of the fifth.

Both metaphysicians and physiologists have hitherto failed in their attempts to bring the instinctive faculties under those proper to the brain. The wonderful works of bees and spiders would suppose a degree of intelligence greater than even the higher and more docile classes of the vertebrated animals ever attain to, superior even to what man, as an isolated being, could evince, were he to try to execute any thing so geometrically perfect.

But it is an accorded fact, that the insect tribe are infinitely below the humblest of the vertebrated animals in relation to the size of the brain; and yet, if their instincts are acts of this organ, how comes it that many of them should be so superior in this respect to most of the vertebrated animals? Comparative anatomy solves the question—they are acts which the brain does not

execute. From the foregoing observations, therefore, we are enabled to infer, that man ranks in the lowest grade as an instinctive being, because he is the most inferior of all relatively to the proportional volume of the fifth pair of nerves compared with the brain. The bee, again, may be placed at the head of the invertebrated animals for its instinctive faculties, because its cranial ganglions are the most developed.

If it were necessary to adduce proof of the exceeding value of physiological knowledge, in elucidating what hitherto has afforded to the materialist and sceptic a tenable position for argumentation, founded on the mental manifestations of the brute creation, and what has no less evaded the researches and speculations of the profoundest metaphysicians satisfactorily to explain,—no more cogent or conclusive example could be given, than the manner in which the investigations of comparative anatomy have demonstrated the difference of the organs of instinct and of mind.



ON

## H E A D A C H S.

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HEADACH, though a term so generally understood as to require no definition, is yet more complex in its signification than may at first sight appear. This is an inconvenience applicable to most of those diseases which take their denomination from a particular symptom—seeing there are many individual symptoms common to several diseases of very different characters. Strictly speaking, all headachs are symptomatic, and they are symptomatic of a numerous and varied class of diseases; but in its ordinary acceptation, the term headach is used to denote that affection in which the pain of the head is the most marked and distressing symptom of the disorder, and with the disappearance, or removal of which, the disease itself is said to cease. The object of the following treatise is to consider

headachs in their more general acceptation ; and the following is the order in which I purpose to treat of them :—

- I. DYSPEPTIC, OR SICK HEADACH.
- II. NERVOUS HEADACH.
- III. HEADACH FROM FULNESS OF BLOOD IN THE HEAD ;  
originating from  
    VENOUS PLETHORA,  
    ARTERIAL PLETHORA.
- IV. RHEUMATIC HEADACH.
- V. ARTHRITIC HEADACH.
- VI. HEADACH FROM ORGANIC LESION OF THE BRAIN.

## I. OF DYSPEPTIC HEADACH.

As implied by the name, this variety of headach takes its rise from a disordered state of the digestive organs. It is usually ushered in by a sensation of chilliness passing over the frame, and a feeling of fatigue and lassitude pervading the whole muscular system. While the feet are cold, the countenance is often flushed and tumid, and the forehead burning hot. A pain, varying in character, is felt most usually over the forehead, or in one or other of the temples. At times, this pain is dull and heavy, attended with much heat, and a sense of weight and fulness, as if the blood-vessels were over-gorged—which, indeed, is the fact; the temporal arteries beat with violence, imparting a throbbing character to the pain, aggravating it by each pulsation, while the veins about the head (most observable on the forehead) are often swollen and distended. There is a total prostration of appetite, and sickness is felt at stomach; the pulse is quickened, often full; the tongue coated with a brown fur; an acrid sensation is felt in the back part of the throat, particularly after eructations; the mouth is clammy; the saliva viscid; the breath offensive; the

skin is dry and parched ; the urine is usually limpid and abundant ; the palms of the hands are burning hot ; and in many cases the feet are icy cold.

During the continuance of the pain, the patient is incapable of applying his attention to any thing ; his thoughts are distracted and confused, and his recollection greatly impaired. Indeed, the common effect of habitual headachs is to injure the energy of the intellect, and especially the memory.

The pain, if seated in the temple, will not unfrequently shift into the eye-ball of the same side, or it will fix itself over the inner corner of the eye-brow, affecting in fact the supra-orbital branch of the fifth pair of nerves, as it emerges from the orbit to spread its ramifications on the brow. This particular kind of headach is, by the general consent of medical writers, attributed to irritation, proceeding from acrid acidity in the stomach and duodenum ; and no headach is more excruciating : the sufferer seeks quietude and silence, being distracted by company ;—the least noise aggravates the pain, and light is painful and oppressive to the eyes, contracting the pupil.\*

\* Meckel explains this last symptom by the conjunction of the first branch of the fifth and third nerve with the ophthalmic ganglion, from which the ciliary nerves proceed.

With the above symptoms there is usually conjoined much sickness at stomach, which is sure to be increased by erect posture, or by moving about. At length retching comes on, and speedily terminates in vomiting, attended with violent strainings. The matter first ejected usually consists of the contents of the stomach in an undigested, or corruptly digested state, mixed, for the most part, with much acrid acidity; sometimes, indeed, the matter brought up consists of nothing else: but if the retching and straining continue, bile is at length ejected—a result not always to be attributed to any undue quantity in the secretion itself, but rather to the pressure which is made by the muscles, in the action of vomiting, on the gall-bladder, emptying it of its contents, and forcing it into the stomach. We thus see that the familiar appellation of “biliary” as applied to headachs is often used incorrectly, the presence of bile being entirely incidental; in many instances, the *effect* of severe straining, and not the *cause* of the headach.

At first, the violent exertion of vomiting only aggravates the pain—a consequence we can readily comprehend, from the increased quantity of blood thereby thrown to the head, as well as from its impeding its return, and thus augment-

ing in both ways the vascular turgescence and distension : but when the stomach is freed of its acrid contents, and the vomiting has ceased, the severity of the pain usually abates, the pulse subsides in force and frequency, and it is not unusual for the patient to fall asleep, if in bed, and to awake, if not entirely free from headach, yet much relieved.

But it is not uncommon for those subject to headach to awake in the morning with it, and that without any irregularity or imprudence in diet over-night. In all these cases, though the headach be really dyspeptic, it is most apt to occur in nervous temperaments ; and is to be traced frequently to some atmospherical change which has taken place during the night ; such as an alteration from dry to wet and close weather : in some a cold, damp, north-east wind will bring on headach. The pain, though slight at first, gradually increases as the day advances, and more especially if the patient be not exceedingly careful in what he eats, so as not to increase the disorder of a stomach already deranged ; or if he should go about his ordinary avocations, or exert his mind, already in a sympathetic state of irritation. But, on the other hand, by great attention to circumstances, such as perfect quietude and

relaxation of mind and body, and abstinence from all food but what is of the lightest description, the stomach will not unfrequently recover its tone, and the headach gradually disappear.

The foregoing are the usual symptoms and course of a dyspeptic headach; but it is not meant to include in this denomination that form of indigestion which has become chronic: the morbid condition we treat of is rather that of excessive sensibility, bordering on subacute inflammation; and, from sickness of stomach being so common an attendant, it is familiarly and very expressively called a *Sick Headach*.

But it sometimes happens that this state of morbid sensibility extends beyond the inner surface of the stomach, and, passing downwards, affects the mucous lining of the duodenum. Whenever it does so, it is apt to extend up the ductus choledochus to the liver, and to cause an inordinate secretion of bile. This, when accompanied by violent headach, properly constitutes the *Bilious* variety of this disorder, and differs essentially from that in which the gall-bladder is merely emulged: in the latter instance, the bile appears in the matter vomited up simply from the mechanical pressure of the abdominal muscles; whereas, in the former case, it is itself the cause of the disorder. Excessive secretion of bile as a

cause of headach is noticed by Galen,\* which, he tells us, when ejected, the headach ceases. Hoffman, Borelli, and Bianchi, relate cases confirmatory of the same fact; and Van Swieten, in his *Commentaries on Boerhaave*, gives the case of a person who suffered most severely once a month from headach, originating from the same cause, namely, accumulation of bile in the duodenum and stomach, and who, when the bile was thrown off the stomach, was almost instantly relieved.

With respect to the CAUSES, remote and occasional, producing dyspeptic headach, we shall find them all, though varied in kind, yet identical in their morbid influences; we shall find them, in short, to be whatever injures or deranges, temporarily or permanently, the tone of the stomach. Of the former description may be enumerated intemperance in the use of spirituous liquors, or surfeit from deranging the stomach by food either in quantity or quality. By quantity alone, one may impose a task of digestion on the stomach it is unable to perform even in its healthy state, and more readily still in a debilitated one. The quality of the ingesta, again, may no less distress the digestive powers. Eating of a variety of dishes that are rich, and difficult of assimilation,

\* De Loc. Affect. Chart. tom. x. p. 442.

that are hard of digestion, or apt to run into spontaneous acescent fermentation, are all capable of inducing headach by the disorder they occasion in the stomach. The undigested mass lodging in and oppressing the stomach (for in this state the pylorus opposes itself to its escape into the intestines), irritates the sensible lining of this organ; while, through the close alliance which exists by sympathy between the stomach and head, the irritation extends to the latter, and thus gives rise to all the phenomena of headach.

These are consequences which may and do frequently result from casual excesses, where there is no previous derangement of the stomach: but when imposed on this organ already in a state of morbid sensibility, we can readily perceive that such irregularities must act with much greater certainty and power.

Another occasional cause of headach is constipation of the bowels. The accumulation and retention of the fæces act as an irritant, extending their effects to the head in a way precisely similar to that of a mass of undigested food lodged in the stomach: both the *ingesta* and *egesta*, if stayed unduly in their transit, become extraneous matters, and produce corresponding effects. When the state of constipation gets habitual, the constitution becomes accustomed to it; and hence per-

sons who employ no means to remedy this torpid state of the intestines will often be found exempt from headache. But this observation does not apply to those who are in the practice of seeking from medicine daily relief from habitual constipation ; if they neglect this assistance, headache is almost certain to ensue.

Hitherto, I have only referred to dyspepsia casually induced as a source of headaches ; but it is obvious that the preceding observations apply *à fortiori* to headaches proceeding from a state of stomach in which its disordered function is of more permanent character. Persons subject to habitual indigestion are liable to severe headaches from the slightest irregularities in diet. In such subjects the imperfect manner in which digestion is performed is apt to generate acrid crudities in the first passages, and often a great deal of acidity in the stomach. I have already explained how these, by acting as acrid irritants on the already too irritable stomach, extend their effect to the head.

Having pointed out the nature and causes of dyspeptic headache, I might be expected now to proceed to the consideration of its treatment ; but as this is so intimately connected, and in a great measure identified, with that of the next species of headache, I think it preferable to treat of both together.

## II. OF NERVOUS HEADACH.

THIS is the form of headach to which those of nervous temperament are subject, and seems to arise from their excessive sensibility to the influence of agents which upon the more robust make little or no impression. Females are more liable than men to this form of headach, although the latter are by no means exempt from it; for while it is most apt to affect the hysterical of the one sex, the hypochondriacal of the other suffer no less from it. This particular temperament in both sexes is indicated by variable spirits, which are readily elevated and easily depressed—by fickleness of temper—and by exceeding susceptibility of feelings both mental and corporeal. The mind and body reciprocally act upon each other in all constitutions, but they are more especially sympathetic in the nervous; and as physical agents, acting through the corporeal sensibility, affect the mind, so mental emotions and impressions no less powerfully operate upon the nervous system.

From this view of circumstances we might *à priori* have inferred that females would suffer more than men under such combined influences,

from their greater mobility and delicacy of frame; and hence be more susceptible to the operation of those exciting causes which produce nervous headach,—and this we find to be the fact.

Amongst the physical agents that operate on a frame of body like the above, and produce headach, may be enumerated the temperaments of the atmosphere. That the particular constitution and temperature of the atmosphere exert a constant and powerful influence over health, we are taught by numerous facts and circumstances of a physical nature, apart from our own sensations; for while a hot state of the atmosphere rarefies the fluids and relaxes the solids, a cold one condenses the one and contracts the other. Its degree of dryness or moisture, again, operates most powerfully on the frame; nor is its electrical state less influential: and when we consider the constant liability of all these conditions to sudden and extreme variations, we cannot wonder at their capability of effecting changes in the system even when in perfect health: how much more powerfully, then, must they act on the frame in a state of morbid sensibility and excitability!

Dryness, considered apart from other circumstances, is perhaps always a healthy temperament of the atmosphere, and when it attains this state gradually it is invariably so: but it is far other-

wise with its state of humidity. There are many persons who, from dwelling in humid situations, are exceedingly subject to headaches. This is a frequent cause amongst those living close to the side of a river where the stream is almost stagnant, and shut in on either bank by high ground which entangles the fogs. Many instances, confirmatory of this circumstance, have come under my knowledge, where there was positive demonstration as to the cause ; for, on walking or driving to some adjoining high ground, the headache would cease.

Some persons, again, are so sensible to electrical changes, that, whilst standing directly under a dense cloud, positively or negatively electrified, and thus becoming a medium of the interchange of electricity going on betwixt the cloud and the earth, they experience from their position an immediate effect on their state of feeling. An electrical condition of the atmosphere is apt to affect the head in particular ; and severe headaches are experienced by many persons both before and during a thunder-storm : these sufferings are relieved as soon as the diffusible fluid which gives rise to the storm has re-established for itself an equilibrium.

A dense cloud of a low temperature, abstracting heat from the earth, also produces a morbid

impression on the feelings, if the body be openly exposed to its abstracting power. The mere impression of cold is apt to derange the health of a delicate person, independently of its effect on the exhalant system. Cold wet feet, or standing on cold pavement, is often sufficient to cause headache ; and the same effect is produced by a cold raw wind (as it is not inexpressively called) blowing on the forehead. Travelling in an open carriage on such a day is sure to cause headache with certain persons.

Not less important to health is the state of purity of the air we breathe. The baneful influence exerted on the constitution by a contaminated atmosphere we have abundant opportunities of witnessing, in the pallid countenances and emaciated frames of the humbler classes living in the densely populated districts of large towns. It has been computed that the lungs, on a full inspiration, contain 220 cubic inches of air—thus making the inner surface of the lungs equal to 440 square feet, that is, nearly thirty times greater than the surface of the body,—and the lungs, on an average, make from 28,000 to 30,000 respirations in the twenty-four hours. This, considered but for a moment, will at once explain why an atmosphere even slightly contaminated must in time produce an injurious effect. Many persons are so sensible

to these unwholesome impressions, that they cannot remain even for a few hours in an apartment crowded with company without suffering from headach before quitting the place; for, besides the pernicious effect of the lights, the constantly increasing contamination of the air produced by a large assemblage of people breathing the same atmosphere, must render it still more hurtful, where every inspiration consumes a portion of its wholesome principle, and every expiration pollutes what remains. I know a lady of distinction at this moment who is exceedingly subject to headachs when in town, but who gets rid of them immediately on going to the high ground of Norwood.

Of a nature similar to the above are headachs produced by inhaling deleterious gases. This is a common effect experienced from visiting theatres lighted by gas.

Nervous headach, though so nearly allied to sick headach, differs from it in several of its symptoms, deriving the peculiarity from the difference of temperament: still, the diagnosis is rendered complex and difficult by their being not unfrequently combined—a person of a nervous temperament affected with dyspepsia and dyspeptic headach, necessarily unites the characters of both. The more distinctive characters are,

that the pain in the head in the nervous frequently precedes the symptoms of derangement of the stomach; the pain is acute and excruciating, not dull and heavy; the stomach has a strong tendency to generate acidity; the pulse is small and frequent; and the complaint in females is often connected with irregularity and disorder of the catamenia. In such, headaches are apt to succeed great mental excitement either from enjoyment or sudden alarms, when the system has sunk into the opposite extreme, that of collapse and exhaustion; and hence it is that grief or anxiety are frequent causes of nervous headache. Long fasting, watching, and fatiguing exercise will, in like manner, occasion headache by exhausting the energy of the brain and nervous system.

It not unfrequently happens that a nervous headache, which has continued severe through the day, goes off in the evening. This is sometimes attributable to a change in the state of the atmosphere itself; but is, perhaps, frequently better accounted for by ascribing it to that periodical augmentation which takes place in the energy of the brain and nervous system generally, recurring every evening. It is this diurnal revolution which relieves the symptoms, for a time, of all adynamic diseases, and which so regularly aggravates those of an opposite character; imparting an excite-

ment which dissipates, while it lasts, the gloomy visions of the hypochondriacal, and which produces the vesper exacerbations and delirium in fevers.

Headach is likewise one of the forms which hysteria sometimes assumes, and it is then symptomatic of disorder principally of the uterine system. At first, spasmotic pains are felt in the abdomen, and are thence propagated to the throat and head. These are followed by intolerable pain, sometimes in the forehead, at other times in the back part of the head, while in some cases the pain occupies a mere point. This is the *clavus* of the older writers, and derives its name from the circumstance of the pain being confined to a spot so small that it can be covered with the point of the finger, and therefore it was compared to a *nail* being driven into the head. The peculiarity in these cases is the suddenness of their attack, and their sometimes no less sudden disappearance; besides, there are always present other symptoms indicative of the peculiar nature of the complaint: the eructation of flatus, in such cases, is often followed by instant relief; and the administration of an antispasmodic will occasionally produce the same effect.

A tendency to headach not uncommonly originates in some latent source of irritation, which,

by the sympathy of the nerves, is transmitted to the head. One of the most usual seats of this irritation is the alimentary canal; and there are three principal sources of it: *first*, acrid secretions working on the sensibility of the inner membrane of the intestines; *secondly*, accumulation of indurated fæces from habitual constipation; and, *lastly*, worms. The last is more especially to be suspected as the cause of headache when it happens and frequently recurs in children. Worms act on the head in a manner analogous to acrid sordes in the first passages, that is, by sympathetic irritation; and when the worm is of the tape species, the disease is often accompanied with convulsions. Hoffman (tom. iii. p. 42) gives a case of this kind where the patient suffered for four years from this cause, without its true nature having been suspected; and I have in my own practice met with more than one case of a similar character. But, taken generally, habitual constipation is by far the most common cause. Hence headache from a sluggish state of the bowels is the prevailing disorder of the sedentary, and is very justly noted as a “desk disease.” A morbid degree of sensibility of the whole frame, rendering it susceptible of slight impressions, sometimes owes its origin to a source often little suspected for a length of time—I mean the urethra. Stric-

ture of some part of this canal I have frequently traced as the latent cause of great constitutional disturbance, of much morbid susceptibility, and as an indirect cause of habitual headach.

The last of the nervous headachs which I have to notice is the frequent concomitant of that state of debility which is induced by those excesses that exhaust the nervous power. This form of the disease may be known by its being accompanied by vertigo, and by a feeling as if the patient would fall down suddenly, and also by general nervous agitation induced by even slight annoyances ; the appearance of a veil, or meshes full of dark moving spots, float before the eyes ; there is much unsteadiness of thought and fickleness of temper, attended with a dissatisfied and restless feeling of mind, bordering on despondency. Of all the varieties of nervous headach this is the most difficult of cure ; for the energy of the brain is often too much exhausted to be ever thoroughly recovered.

With respect to the consequences of dyspeptic and nervous headachs, we find the first, if suffered to become habitual, laying the foundation for the disastrous terminations which result from venous plethora within the head ; and as regards the second, their continuance and repetition have a great tendency to impair the intellectual faculties,

and especially the memory: the sight is also liable to suffer from their frequency; and its total loss by amaurosis is far from being an uncommon consequence of severe and protracted headachs,—indeed, a feeling of dizziness, and considerable dimness of sight, are usually experienced on the day following a violent attack of headach.

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*Of the Treatment of Dyspeptic and Nervous Headachs.*

From the view taken of the nature and causes of sick and nervous headachs, the treatment obviously divides itself into that which is palliative, by which means are to be adopted to alleviate and remove present symptoms; and that which is systematic, by which we are to endeavour to prevent their recurrence. The first of these objects is most effectually accomplished in dyspeptic headach by dislodging the offending matter from the stomach. Nature herself often has recourse to this mode of relief; and we are to follow her in her ways, and adopt the indication as a means of cure. If the headach be slight, arising from some acid crudity in the stomach, relief is not unfrequently obtained from an antacid combined

with some carminative aromatic; and the pain will often disappear when flatulence breaks from the stomach. This not unfrequently takes place spontaneously, and is followed by almost immediate alleviation: its occurrence shews that the stomach is recovering its tone of its own accord; and the salutary effort may judiciously be aided by some carminative stimulant: I have repeatedly seen a teaspoonful of eau de Cologne, taken in a little camphor mixture or common water, produce this effect. The same spirituous scent applied to the forehead is often of considerable service; it lessens the pain, if it does not remove it. Another simple, but not unfrequently efficacious, means is to take a wine-glass of peppermint and common spring water, with a little pure magnesia and rhubarb added to it: the peppermint acts as a carminative, the rhubarb as a stomachic tonic, the magnesia as an absorbent of acidity, and the neutral salt formed by their junction proves gently aperient: ginger also is a grateful stimulant and carminative to the stomach in similar cases. Laudanum is sometimes used externally to abate the pain of headache; but I would caution patients against having recourse to opium in any shape internally to relieve headache: if not taken in a large dose, it fails in easing the pain; and when, being taken in some quantity,

it partially succeeds, it only does so by stupifying the senses for a time ; for as the narcotic effect subsides, the headach returns, and often more severely than before. Another topical and familiar means tending to mitigate headach is stimulation applied to the nostrils, by such substances as carbonate of ammonia, æther, aromatic vinegar, and the like, and they certainly ease the pain. The operation of a volatile stimulant so used is not confined, it is to be recollect, to the head : after passing the nostrils, it is inhaled into the lungs, and thus extends its effects by sympathy to the stomach.

I have often known a cup of tea or strong coffee have a very beneficial effect in relieving sick headach.

The foregoing observations apply chiefly to the removal or alleviation of headach when the cause giving rise to it is of a trivial and slight nature ; but if the stomach be loaded with something offensive, whether of undigested or imperfectly digested food, or much acidity, the above means are too feeble to allay the irritation excited in the stomach, and nothing less than the expulsion of the irritant brings relief. If headach from such a cause comes on in the evening, it may be evacuated downwards, perhaps with less inconvenience than otherwise, by taking an active ape-

rient pill : the remedy seems to operate indirectly as a soporific as well as a direct purgative ; and the patient awakes next morning quite free from headache. This, indeed, is a practice which is had recourse to by some with much certainty of effect when they have imprudently indulged too freely at table ; and while their companions in the debauch are the next day suffering under violent headache from their excesses, the party taking the antidote escapes with impunity. To this may be conjoined, bathing the feet in warm water, to which a tablespoonful of mustard-flour has been added. But if the patient rise with headache, or should it come on early in the day, with symptoms of much disorder of stomach, the speediest relief is obtained from the evacuation of the offending matter upwards : generally this may be easily accomplished from the great nausea present ; and a draught of lukewarm water, or, what is better, a weak infusion of camomile, will be sufficient to provoke vomiting. By aiding in this manner the inclination to vomit, you not only more fully cleanse the stomach of any acrimony, but by thus affording the ejecting muscles a better fulcrum to act upon, the patient is relieved of those unavailing strainings which so much aggravate the pain.\*

\* The stomach itself I conceive to be wholly passive in the action of vomiting ; and there are certain physiological pheno-

As long as the pain is violent, and the stomach not disengaged from its irritating and undigested burden, the patient had better remain in bed—perfect quietude is his earnest desire; and even after the evacuation of the stomach, the recumbent position is the most comfortable for him; since it not unusually happens that, after the vomiting has ceased, he falls asleep, and awakes in an hour or two after almost free from headache.

Should the inclination to vomit continue after

mena attending it which merit notice. Thus, in every effort of vomiting the larynx is drawn upwards, and expiration delayed by a voluntary act, at the same time the glottis is closed. Now, in the raising of the larynx, the pharynx rises with it, the effect of which necessarily is to make a straight line of the œsophagus with the cardiac orifice of the stomach, by which the evacuation of the latter organ is much facilitated. The next curious circumstance to bear in mind is, that as long the lungs are full of air, and expiration restrained, the diaphragm is kept in a state of contraction, and therefore of tension. Therefore, when the abdominal muscles are thrown into convulsive action by the sympathetic operation of an emetic on the stomach, and the general cavity of the abdomen thereby considerably diminished, the stomach is pressed forcibly against the tense diaphragm, its contents are ejected, through the cardia, up the straight line or rather passage formed by the elevation of the pharynx, and evacuated at the mouth, thus completing the physiological phenomena of vomiting. To produce the foregoing train of actions, it is not essential that the emetic should be swallowed—an emetic substance thrown into the veins, or a tobacco poultice applied to the epigastrum, is capable of producing the same effects.

the stomach has been emptied of its crudities, this is best allayed by soda-water, to which a little tincture of ginger has been added ; or an effervesing draught may be taken, combined with a teaspoonful or two of tincture of calumba : either imparts a refreshing tone to the stomach, and clears off the sense of heaviness that may still be felt on the brow.

The treatment of bilious headach, properly so called, does not differ from the sick or dyspeptic in the palliative means to be employed ; but as the overflow of bile arises from disordered action of the liver, the only effectual mode of preventing the headach from recurring is by adjusting the deranged function ; and among those means which have been found most beneficial in such cases, is a course of some natural saline spring, aided by a little blue pill and colocynth, combined with the use of the warm bath. The Cheltenham waters, in particular, have long enjoyed a high and well-merited reputation for their efficacy in hepatic derangements ; and I have found the Beulah saline spring at Norwood equally successful in several similar instances. The Beulah spring exceeds the Cheltenham in the quantity\* of salts

\* Vide the analysis of the Beulah Spa in the author's account of the spring.

held dissolved; and their medicinal qualities, when compared, are not less excellent.

Having treated of those palliative means which alleviate and remove sick and nervous headaches, a more important point remains to be discussed, and that is, In what manner we are, by systematic treatment, to prevent their recurrence.

All headaches, as I have already observed, are symptomatic complaints, and they take their specific appellation from a symptom. The systematic treatment of them, therefore, consists in obviating or removing the causes from which they originate. Intemperance, as a cause, only requires self-control to abate it: the disorder it occasions in the digestive functions ceases with the imprudent indulgence, and with that the symptomatic headache. But when from this, or any other of the causes enumerated, the stomach has become so debilitated as to be liable to be disordered on the slightest occasions, and indigestion becomes habitual, we can only counteract the tendency to headache accompanying this morbid condition of the stomach by subduing its morbid sensibility, and restoring its impaired tone. If, therefore, collections of acrid sordes in the stomach and alimentary canal, the product of the deranged function of digestion, be the sympathetic source of headache, our only rational means of relief is to

be sought in obviating their generation by bringing back the deranged function to a state of health. With this intention we must have recourse, first, to those medicines and measures that remove the excessive sensibility of the digestive organs, and next to those which invigorate them; to the accomplishment of both of which objects nothing more conduces than the regulation of the diet, and attention to the restoration and due performance of all the emunctory functions of health. And when we have succeeded in subduing the morbid sensibility of the stomach and alimentary canal, we are next to strengthen them by aromatics and bitters.

The remote cause of nervous headaches I mentioned to be excessive susceptibility to certain morbid influences. Our grand indication, therefore, in the treatment of these cases, is that of strengthening the nervous system generally; for there is no counteracting the influences themselves, save that, perhaps, of cold, and this we can only do imperfectly. Against the humidity of the atmosphere there is no perfect protection; it penetrates into the closest recesses of our dwellings, and affects us even in bed; and such also is the case with great electrical changes of the air. When headache is symptomatic of that mobile condition of the nervous system which is so often

associated with a hysterical tendency and disorder of the uterine functions ; or, if it assume the form of clavus, in which, as I have already mentioned, the seat of the pain may be covered with the point of the finger, we are to resort to the most energetic tonics for its cure, especially the metallic, together with quinine, the diffusible stimuli, as ammonia and the æthers, to the shower-bath, and particularly to those antispasmodics which act more specifically on the abdominal ganglionic system of nerves, as assafœtida, valerian, galbanum, and the like. In all the forms of this Protean disease (*hysteria*), there is much flatulence both in the stomach and bowels ; and I have often been led to think that the undue extension produced on the muscular fibres of these two viscera by the great inflation, is the main origin of many of those sympathetic affections which characterise this disease : nothing more certainly affords relief than its removal ; and it is in this manner I conceive it to be that all those medicines which operate as carminatives prove so beneficial. I have already noticed the fact, that in all headaches proceeding from the stomach, the discharge of wind by eructation procures an abatement of pain.

Another common cause of headache mentioned, is the irritation produced in the lower bowels

by a state of constipation. Undue retention of the contents of the bowels may originate from a deficiency in the proper quantity of the fluids secreted into them, or from a torpor of action in their muscular movements. There are two distinct motions in the intestines, the peristaltic and the vermicular. The first is named peristaltic from the movement being produced by the contraction of the muscular fibres surrounding the gut, by which its calibre becomes diminished ; the second, again, or the vermicular, gets its denomination from its resembling the longitudinal contractions made by a worm in progressing—a motion caused in both by the contraction of those muscular fibres that run longitudinally along the gut and the worm.

Now, it is by the peristaltic and vermicular actions united that the contents of the intestines are propelled and eventually evacuated ; and the following appears to me to be the series of action, deduced from the laws of mechanics, by which the propulsion is accomplished. The circular, or peristaltic, set of fibres, by contracting, compress the contents of the gut ; and this, by forming a fulcrum, affords a fixed point for the longitudinal to contract upon : this done, the contraction of the longitudinal set of fibres yields, and is followed

by their relaxation, the circular meanwhile remaining in action, the necessary effect of which is the progression of the contents by the lengthening of the bowel. It is by a continual succession of such alternate retractions and relaxations that I conceive the whole process of propulsion is performed, and that the main office of the circular or peristaltic fibres is to afford, by their action, a fixed point for the longitudinal fibres to retract upon. If this view of the process be correct, we hence infer that the actual forwarding of the contents of the bowels is performed entirely by the longitudinal muscular fibres,—an idea that gains confirmation from this set of fibres being so much stronger in the large intestines than in any other part of the primæ viæ, where, from the increased solidity of the matter to be evacuated, a greater propulsive power is required.

But besides a torpid state of the natural intestinal motions, and a diminution of secreted fluids, being causes of constipation, I may here take occasion to notice the influence of habit on the diurnal excitability of the lower portion of the bowels. The bowels, we know, can be brought to that state of regularity, that the nisus to evacuate them shall return at a precise hour. Why this should be, it is not so very easy to account

for; but still there is no denying the fact: and a circumstance not less singular, and equally difficult to explain is, that if, by a fortuitous accident, you destroy, even for a period, the regularity of the evacuation by refusing to respond to and obey the nisus, it is often found a matter of some difficulty and delay to re-establish the regular periodic return of that state of excitability which occasions and institutes it.

Constipation, like every other cause of irritation, acts variously on different constitutions and states of the system. One of its ordinary effects is to derange the whole process of digestion, and to disorder and (if suffered to continue) to disorganise the liver. The effect which constipation, artificially induced, has on the liver of poultry, is well known. Hence we find, in both of these effects, two prolific sources of headaches—of the sick or dyspeptic headache, and the bilious headache properly so called. Now, the method of relieving either of these complaints from such a cause is evident; and since constipation, for the most part, proceeds from torpor of the bowels and a deficiency of the natural secretions into them; and as purgative medicines diametrically counteract these causes, by stimulating the one, and exciting the other, they naturally become the

remedies of constipation : nevertheless, it requires both judgment and attention in the selection of them ; for, though all purgatives evacuate the bowels, many of them, we know, act so as to leave them in a more obdurate state of constipation than before their use. Hence we are to be guided in our choice by those which rather solicit than force the bowels to action ; which assist them to perform their appointment, by imparting tone as well as stimulus, in preference to exciting them to a strong and extraordinary effort, by which they become more debilitated.

### III. OF PLETHORIC HEADACH.

HEADACHES proceeding from fulness of blood in the head originate in two different sources—the arteries and the veins: the one producing a determination of blood to the head; the other a stagnation of blood within it: they are attended by symptoms differing in many respects from one another, and they arise from opposite causes. But, in saying this, I beg to be understood as referring to their simple characters; because, as I purpose shewing in the sequel, these causes are at times combined in the same case, in which instances the disorder naturally partakes of and combines the characters of both. The arterial form of the disease is more particularly that to which youth is subject; whereas the venous is more peculiarly the disorder, as it is equally the natural consequence, of old age, and hence is much the more prevalent of the two. When the body is young and growing, it not unfrequently elaborates blood in superabundance: in such excess, in fact, as to generate a state of arterial plethora,—a condition of the vascular system most usually shewing itself in both sexes about the

period of puberty. A dull pain and sense of fulness is felt in the head; the patient loses his ordinary vivacity, and is conscious of a cloudiness of thought; and he is unable to fix his attention long on any subject. The brain is sometimes pierced by lancinating pains, the eyelids are heavy and depressed, and light becomes oppressive. In females the pain often extends down the spine, from the neck to the sacrum, which is increased by moving about; and an aching sensation is felt in the limbs; erratic pains are felt in the back and loins; a painful sense of weight and fulness is experienced, sometimes at the back part of the head and nape of the neck, at other times in the forehead and about the root of the nose. There is often pain at the pit of the stomach, and at times a feeling as if a cord were bound round the brain: the pupils enlarge; the pulse is slow, feeble, and unequal; the heart is subject to palpitations; tremulous movements are easily excited in the muscular system; and there are symptoms of general excitement and mobility. With the appearance of the catamenia all these symptoms, premonitory of puberty, subside. In the male the symptoms are somewhat different; the pain is often chiefly felt in the back part of the head, and it is usually accompanied with a sense of stiffness in the back part of the neck, and pain or

tenderness in turning the head. With confusion of thought there is likewise confusion of vision ; a sense of dizziness and fulness,—and dull pain is felt under the bridge of the nose. This last symptom is the usual precursor of the breaking out of a bleeding at the nose, which, on taking place, usually affords relief.

But there is another form, as I have said, of this affection, in which we find conjointly arterial and venous plethora. It is most apt to occur at the middle period of life to those of a full habit. But though, from the fulness of blood, the arteries themselves are over-distended, and throw the blood in excess to the head, yet it is the venous plethora which preponderates, and, if not removed, eventually proves the occasion of a fatal issue. In the headache proceeding from these united causes, the pain is entirely different from that characterising sick and nervous headaches ; for it is not superficial but deep-seated, and it is rather dull than acute :—a difference which we can understand from the greater obtuseness of the sensibility of the substance of the brain, when compared with that of the parts forming the seat of sympathetic headaches.

To these symptoms are superadded a strong tendency to drowsiness, and a heavy appearance of the eyelids, which are swollen, and sometimes

even œdematos, their edges becoming red and irritable : the eye itself is somewhat inflamed, and the skin covering the forehead gets puffed, ruddy, hot, and coarse in appearance from desquamation of its epidermis. These cases are often much affected by changes of weather, and are always worse in a damp and thick state of the atmosphere. Strange noises often vex the ear ; and at times the auditory nerve becomes so sensible as to perceive the pulsation of the internal carotid artery as it passes through the carotic canal. It is this which occasions the strong beating that is often perceptible in the ears. The face is usually flushed and tumid, and the pulse full ; but in pure venous plethora of the head, pallor of countenance, a spare habit of body, and a small and feeble pulse, are pathognomical of the complaint.

Among the causes of arterial plethoric headach I have already mentioned the excessive elaboration of blood which so often occurs about the period of puberty, and the rush it is apt to make to the head—a phenomenon attributable to the change the constitution undergoes in both sexes, by which the equilibrium of the circulation is deranged in its effort to fulfil new purposes. Later in life, excessive corpulency produces the same effect—cerebral congestion,—but in a different

way : it impedes the circulation generally in the venous system ; and the accumulation of fat about the neck and chest causes a stagnation of blood in the head, by the obstruction it offers to its free return to the heart. But the most frequent of all the causes producing cerebral plethora is the debility of the venous circulation within the head, which is induced by whatever permanently injures the constitution. This is, in fact, one of the most common causes of death by the ordinary course of decay of the vital functions in old age ; but it also frequently occurs at a more early period of life, when premature consumption of the vital powers has been induced by much previous disease and suffering, unhealthy occupations, or by habits of life which wear out the frame, and especially by a continued indulgence in excesses and irregularities, notwithstanding that the powers of the constitution have already shewn signs of exhaustion.

The effects resulting from these are often not less sudden than obvious, and evince the inroad they have made on the frame by an alteration frequently more apparent to the friends of the patient than to himself. From a state of comparative fulness of habit, he quickly becomes emaciated—he loses flesh, his aspect becomes pale and sickly, the eye blanched and dim, and

the whole frame infirm ; symptoms of congestion within the head are strongly marked ; he is subject to sudden dizzinesses in his walks, and feels as if about to fall, and gets readily drowsy when seated, even in the presence of company. These menacing symptoms proclaim the moment to be one of just alarm ; for if they are not promptly attended to and removed, an apoplectic or paralytic seizure is inevitable.

The ultimate tendency of sick headach, I may here observe, when of long and often-repeated occurrence, is to induce the very state I have been describing above—of venous debility within the head ; for the frequent over-distension of the vessels at length destroys their tone, and thus lays the foundation of the same morbid consequences.

What must add to the fulness of the general venous system in old age is the obliteration of the veins of bones by their gradually increasing consolidation. MM. Fleury, Chaussier, and Brechet, have fully demonstrated the existence of what was formerly admitted merely as a necessary consequence of the laws of organisation—the veins of bones exist under the form of canals with osseous walls, equally incapable of dilatation or contraction, the blood circulating through them entirely by the *vis à tergo*.

The foregoing are the constitutional causes that derange the circulation within the head, and which produce plethoric headach : the more usual of the incidental are, excessive stimulation of the brain from over-study, or too intense application to business ; from mental anxiety or violent passions and emotions ; from intemperance in the use of wine or spirits ; and sometimes from being much in heated and crowded apartments, such as the courts of law and the houses of parliament.

Headach from fulness of blood in the veins of the brain is apt to occur in men of literary pursuits, and in those whose business confines them to the desk, or to a constant stooping position of the head : these, when conjoined with sedentary habits, and intense application of the mind to some harassing occupation, all concur to derange the equilibrium of the circulation. The first effect is to throw the blood in undue quantity to the head ; in time this determination becomes habitual : the brain is exhausted by the intensity and long continuance of the excitement, and the consequence of this exhaustion is congestion in the veins : the healthy tone of the vessels is destroyed ; and when this state of engorgement has attained a certain height, some accidental aggravation of it, as from a full meal or accidentally stooping, produces rupture of one or more of the

vessels, and the patient has an apoplectic or paralytic seizure.

When apoplexy ensues under such circumstances, it often proves the most fatal form of this disease: the determination to, and congestion in, the head have become habitual; the energy of the whole nervous system is, at the same time, destroyed; so that the usual remedial measures, if not used with great circumspection and judgment, rather accelerate than prevent a fatal issue.

Habitual intemperance, heated rooms, and violent passions and emotions of the mind, likewise destroy the healthy tone of the sensorium by the high excitement they at first produce, and by the excessive exhaustion that necessarily follows; the consequences of which are a violent determination of blood to the brain in the first instance, and its subsequent stagnation in the second.

Another very common cause of plethoric headach is the sudden suppression of some accustomed evacuation, either natural or acquired. Of the first kind is suppression of the catamenia, or a check given to the insensible perspiration: of the second are suppression of bleeding haemorrhoids, of periodical bleeding of the nose, or the healing of old ulcers or issues. The mass of blood being thus augmented suddenly, before the vessels can

accommodate themselves to the increased quantity of their contents, a state of congestion takes place in consequence, which, when determined to the head by any particular or accidental predisposition, is a very frequent cause of headach. The connexion between the periodic function of the uterus and the head is most intimate. Headach frequently precedes the regular period; it is likewise the frequent concomitant of pregnancy. In both of these instances it seems to proceed from fulness of blood in the brain. Headach proceeding from the same cause is also a common attendant on dysmenorrhœa, or difficult and painful menstruation, and still more constantly so on the entire suppression of it in chlorosis (*Amenorrhœa chlorotica*). The pain of the head in all these cases, except the last, is more severe than in the preceding, and is sometimes relieved by a spontaneous bleeding from the nose; whereas in chlorosis the pain is usually dull and heavy, indicating a slow and languid circulation through the brain, while in the headachs precursory of the regular period, and in those produced by a gravid state of the uterus, the pain is throbbing and acute, caused by the distension of the arteries and the preternatural impetus with which the blood circulates in them. With reference to the manner in which pregnancy produces plethoric

headach, various circumstances may be pointed out as concurring to this effect: as, the disposition to generate blood in excess natural to the state of gestation; the local irritation of the womb and its compages, extending by sympathy to the brain; and lastly, the compression made on the iliac arteries and veins, which, by impeding the circulation towards the lower part of the body, necessarily casts it upon the upper.

I mentioned an obstruction of perspiration as a cause of plethoric headache, and there is no cause in operation which produces headache of this kind more frequently in certain constitutions than a humid state of the atmosphere.

The humidity of the atmosphere, by obstructing the exhalation from the lungs, and perspiration from the surface of the body, exerts a powerful influence on the body, and that the more energetically, the greater the degree of constitutional susceptibility of the nervous system. Lavoisier and Seguin state the average quantity of exhalation from the human body by the skin and lungs to amount, in temperate climates, to forty-five ounces in the twenty-four hours, allowing thirty to be thrown off by the former of these emunctories, and fifteen by the latter. We have only to reflect, therefore, for a moment, to perceive what results are likely to accrue from any sudden check

given to the issue of so much excrementitious matter from the fluids of the body; independently of the immediate plethora it must produce in the sanguineous system.

It was long believed, and is still a popular persuasion, that the cuticle was perforated by innumerable apertures named pores, that have been compared to little fountains with a drop of fluid transpiring through them, and which, if wiped away, is immediately followed by another exuding. But, though the phenomena of perspiration be correctly described, the investigations of anatomists have determined that there are no distinct pores or perforations in the cuticle through which it escapes. However, this does not alter the fact, that the continual exudation that takes place constitutes a large sewer for evacuating fluids which are no longer useful to the body. Any sudden check, therefore, which is given to the function of such an emunctory, must, it is obvious, be attended with consequences important to health, both from the contamination of the humours produced by the retention of a matter of an excrementitious nature, and the fulness it occasions in the vascular system by being suppressed.

An obstructed state of the exhalants opening on the head, from accumulations of scurf, or want

of cleanliness, is another very common cause of headach. I have known headachs of frequent recurrence, and great intensity, completely got rid of by adopting the practice of washing the head every morning with lukewarm water.

Allowing the hair to grow too long seems to produce headach in the same way: it is well known, that if monks neglect shaving their heads, after having been once habituated to the practice, they are sure to be affected with headach, which the tonsure immediately relieves.

Scarcely of less interest to the physician than the state of humidity of the atmosphere in producing plethoric headach, are the variations in its weight and pressure, as best and most accurately indicated by the barometer. This is an influence which has not obtained from pathologists that degree of attention to which, in my opinion, the importance and magnitude of its agency on diseased conditions of the body entitle it; and we have only to put the matter of fact into figures, to excite astonishment that a circumstance so influential on disease should have been so very much overlooked.\* A dry state of the atmosphere invariably indicates a high degree of pressure, and,

\* Some idea of the power of the pressure of the atmosphere may be formed from its recent application to supply the place of steam on railways. The piston attached to the carriage on the

consequently, a greater weight; for it is under these circumstances that the mercury stands highest in the barometer. Now, it has been ascertained that the pressure of the atmosphere is, on an average, fifteen pounds on every square inch of surface. Again, the extent of surface on the body of a man of mean stature is computed at 2160 square inches, which sum, multiplied by 15, gives 32,400 pounds as the total amount of weight or pressure he ordinarily sustains,—a weight so prodigious, that, did it not admit of the most indubitable demonstration, we could not well credit it.

Let us follow up the subject a little further, and suppose an event to happen, of very common occurrence—namely, that the mercury in the barometer shall rise or fall an inch; this will make, as computation has ascertained, a difference of exactly a quarter of a pound of pressure on every square inch of surface, and hence will either add to, or remove 1080 pounds from the average weight pressing on the body.

Humboldt, on ascending Chimborazo to the height of 6006 metres, found that the barometer

railway at Wormwood Scrubs is only nine inches in diameter, and yet the atmospherical pressure on this small surface, and with an imperfect vacuum withal, is sufficient to propel it loaded with passengers.

had fallen somewhat more than  $14\frac{1}{2}$  inches below its average height at the level of the sea: the amount of weight taken off the body must, in this case, have been enormous.

After making this statement, I will ask if there be any who can maintain that such a difference of weight can be added to, or abstracted from, that pressing on the body in a multitude of diseased conditions of it,—and more particularly in those wherein the fluids are chiefly concerned,—without producing an effect, either prejudicial or otherwise? Though the perfectly healthy and robust frame may suffer no very *sensible* inconvenience from such a change, it is far otherwise, I apprehend, with the diseased and delicate; and few, if any, of these can bear such vicissitudes without the symptoms of their complaints undergoing a corresponding alteration.

Without attempting or desiring to revive the doctrine of the Iatromachinists to the irrational extent of its original propounders, (Borelli, Bellini, Keil, and others,) I may yet advance it as a necessary mechanical sequence, that when the pressure of the atmosphere is suddenly and considerably diminished, it must occasion a rush of blood to the extreme vessels. This we may daily see exemplified in the most familiar way in the application of a cupping-glass: in rarefying the

air it contains, you lessen its pressure, and the blood is forced to the part in consequence. A precisely similar result happens when that takes place naturally in the external atmosphere, which you produce artificially in the hollow of the cupping-glass. A person predisposed from any cause to some local determination of blood, will experience a somewhat similar effect, from any sudden diminution of the atmospherical pressure, to that which we see takes place on the application of a cupping-glass. This is an effect we have almost daily opportunities of witnessing in persons having a strong determination of blood to the head ; and it is during those times of the year when the barometer is most subject to sudden and great variations, that apoplexies may be observed to occur most frequently. The effect of this influence is not less manifestly to be remarked in persons liable to pectoral complaints having their seat in the circulatory system ; and of which hæmoptysis, perhaps, offers the most apposite proof and example.

The preceding observations afford an illustration of the difficulty of separating the various kinds of headachs from one another, so that they may be treated of distinctly. Few vicissitudes of the weather are more apt to induce headach than an alteration in its density ; and yet, in regarding

its sphere of operation on the living frame, we find it no less disordering the stomach and the circulation within the head, than the nervous system in general. But though such be the ordinary effect of a sudden change in the weight and pressure of the atmosphere, there are many interesting facts which shew that the human frame can habituate itself to very different degrees of atmospherical pressure, without impairing its energies or deranging the equilibrium of healthy action. On the summit of Mont Blanc the celebrated Saussure scarcely had strength to consult his instruments; while at a height equal to this, in South America, young females will dance for a whole night without being extraordinarily fatigued. The battle of Pichincha, in the late war of independence, was fought at an elevation equal to that of Monte Rosa, that is between 15,000 and 16,000 feet above the level of the sea.

Operating in a manner exactly similar to suppression of the catamenia is the sudden cessation of bleeding haemorrhoids. Though a disease, yet the constitution becomes habituated to it, and the suppression of the evacuation produces, as a necessary and direct consequence, a plethoric state of the blood-vessels. The pernicious practice of being bled at stated periods induces the same condition, if the usual venesection be not had

recourse to ; and I cannot too strongly inculcate the necessity of overcoming, by some judicious plan of treatment, this habit which the system has had artificially imposed upon it ; for its continuance is fraught with danger.

Not less dangerous, at a certain period of life, is the healing up of old ulcers, especially if there be already a tendency to congestion within the head, and no precaution be taken to substitute another drain — either by keeping the bowels constantly lax, or by opening an issue. A fatal example of this fact lately came under my observation, where, from a sudden check being given, by improper dressing, to the discharge from an ulcer of long standing, situated on the ankle, the patient had an apoplectic seizure, of which he died. Old ulcers, after remaining obstinately open for years, will sometimes dry up all at once, and of their own accord,—an event at which the patient is much rejoiced ; but this is often a very dangerous circumstance, and requires instant preventive treatment, particularly if any uncomfortable feelings be experienced in the head. I have known the cure of certain eruptions of old standing, and likewise the closing up of long-established issues, followed by the same dangerous results.

The last of the causes inducing plethora which

I have yet to notice are, exposure of the head to the hot rays of the sun, or travelling in the heat of the day during summer, full feeding, an indolent life, and the habit of sleeping after dinner. If no extraordinary fatigue has been undergone, exceeding drowsiness after dinner is a sign, at all times, of having eaten too heartily. Even in indulging in the practice, there is a great difference in the effect of sleeping upright in a chair and reposing on a sofa. The sleep in the former is generally short, and never very heavy; and from the head being upright, and usually thrown somewhat back, the blood readily gets away from the brain: but when the whole body is recumbent, and the stomach full, the sleep is heavy, prolonged, and often stertorous; the blood accumulates in the head; and the person who thus indulges awakes drowsy and unrefreshed, with a sense of fulness and weight, if not pain, in the head, and the eyes are suffused, and painfully sensible to light.

A few remarks remain to be made on the sequelæ, or morbid consequences which ensue from headaches proceeding from fulness of blood in the head.

Occurring in young persons, the engorgement of the vessels, if not otherwise removed, frequently relieves itself by rupturing a vessel within the nostrils; and the bleeding which necessarily en-

sues should not be too speedily checked, for it very rarely continues longer than is necessary to remove the cerebral plethora ; but this is not always the case when epistaxis occurs in persons more advanced in life : in this case it is always to be regarded as a circumstance indicative of great, and sometimes of immediate, danger, from the difficulty of stopping the haemorrhage before a large quantity of blood has been lost—and of ulterior danger, from its indicating, besides a great degree of congestion, the probability that, when it next returns, it will occur within the brain. It is to be recollectcd, that in youth the plethora present is arterial ; in more advanced life it is venous.

Violent headachs often precede the invasion of a paralytic seizure, and are, in many instances, to be considered premonitory of the attack. In all such cases the complaint requires to be instantly attended to. The following outline of a case I was lately called to will exemplify the fact :—Col. R. æt. 63, who had seen much hard service, had for several preceding months been liable to severe headachs ; and when these were absent, he was subject to giddiness if he turned round at all quickly : his countenance was pallid and sunken, and the expression of his eye watery and languid ; bowels irregular ; pulse slow and feeble ; and his hand felt cold and clammy. He complained of

great languor and weakness, felt chiefly about the knees and wrists, and principally in the morning ; the patient, to use his own expression, feeling more tired on getting up than when he went to bed. On stooping one evening to tie his shoe-string, he suddenly fell forward ; and, on being lifted up by his servant, he was found to have lost the entire use of his left side.

Post-mortem examination has shewn, in some rare cases, the cause of the disorder to lie in a diseased state of the trunks of the cerebral arteries. In Paris, in 1825, I was present at the opening of the head of a person who died of a paralytic seizure, preceded by violent headachs, in which the pathological alterations resembled those of a case mentioned by Dr. Abercrombie, namely, a thickened and ossified state of the basilar and carotid arteries, together with a highly injected condition of the meninges of the brain.

It is necessary to say a word or two of the prognosis of headachs,—that is, of those circumstances which direct us in forming a judgment as to their results.

Headachs, when recurrent, and attributable to some evident morbid influence of a casual or temporary nature, are rarely attended with danger ; but it is not so with headachs which arise without appreciable or sufficiently apparent cause

—which are violent, constant, and obstinate, and will yield to no remedy; for then it indicates some fixed morbid action or disorganisation going on in the brain. Headachs, attended with noises in the ears, much giddiness, temporary loss or obscurity of vision, difficulty and slowness of utterance, or sense of numbness in some part of the body, threaten either an apoplectic or paralytic seizure.

Amaurosis, deafness, and discharges from the ear, are frequently preceded by violent headachs.

Severe and long-continued headachs are sometimes relieved by spontaneous epistaxis.

The occurrence of headach in those that are insane is usually deemed a favourable sign.

On the other hand, many headachs, though exempt from danger in the first instance, lay the foundation for fatal terminations, by destroying, by their long and frequent recurrence, the balance of the circulation within the head; and hence it happens, that the often-repeated return of a sick headach eventually changes into a headach of a far more dangerous kind, having for its cause venous plethora within the brain. Cerebral irritation may be, and indeed usually is, at the beginning, only sympathetic; but by continuance or repetition it becomes confirmed, and the action, at first set up through the influence of a distant

sympathy, establishes itself as a local disease. It is in this way that we so frequently see water in the brain arising in children through the irritation of a disordered condition of the bowels. And as confirming the above, I think I have seen leeches do more good, in the incipient stage of these cases, when applied to the epigastrium than to the head.

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*Of the Treatment of Headach from Fulness  
of Blood.*

Headach proceeding from arterial plethora,—a disorder most common in young persons (of either sex) at the period of puberty,—simply requires antiphlogistic treatment. If the symptoms of arterial action be strong, it will be advisable to take away blood from the arm; for, as Monro (*secundus*) very justly remarks, “Although we cannot by arteriotomy, or venesection, lessen much the quantity of blood within the cranium, we can diminish the force with which it is impelled into it.” It is found, however, that a plethoric state of the system bears the loss of blood badly; and it therefore behoves us to be somewhat cautious in the abstraction of it, and not to be deceived by the full and bounding pulse, or plethoric

habit of body, which exists. Where the symptoms of fulness of blood and determination to the head are less urgent, four or five leeches to each temple may suffice to relieve them. In both cases, a brisk cathartic is often of more service than bleeding, and should always be conjoined with it. This kind of headach is frequently relieved by spontaneous bleeding from the nose ; and I have witnessed considerable benefit from the application of a leech to each nostril : they are easily prevented from biting too high up, by pinching the nostrils together ; or if preferred, a needle and thread may be passed through the leech's tail with the same object. The French, by the way, adopt an ingenious, though it must be confessed, cruel method to increase the quantity of blood abstracted by a leech : they snip off a small piece of its tail after the leech has fixed itself, by which means the blood flows out at the wound as fast as it is sucked in by the mouth ; and the same object is obtained by puncturing the tail with the point of a lancet.

Leeches are particularly applicable in all those cases where it is a matter of paramount importance to take away as little blood as possible : as in the aged and infirm, or in those whose constitution has been broken down by previous irregularities, long residence in unhealthy climates, or services

of hardship and danger; where symptoms of debility and inanition prevail; and where we are obliged by the urgency of the circumstances to draw off blood, as the only direct means of relieving the dangerous congestion existing within the head. In such cases, Dr. Gondret's practice of dry-cupping the back of the neck and back part of the shoulders is even preferable to bleeding.

When the rush of blood to the head is violent, inducing much disorder of the brain,—which not unfrequently happens in young females at the period of the emansio,—besides adopting the above means, we are to apply cold lotions to the head by means of compresses. Celsus recommends a hollow sponge. The best lotion for the purpose is a solution of sal ammoniac in water. Ice has been recommended in these cases, but cold liquid applications, in my opinion, are preferable; for reaction not being so liable to ensue when they are removed, the shock to the brain is not so sudden or intense:—the one merely restrains the inordinate action; the other repels it altogether; and, like a spring when strongly compressed, it rebounds with the greater force the moment the compressing power is removed. Ice, besides, in melting, absorbs (renders latent) less caloric than water does in evaporating, and hence is, in fact, not so powerful a refrigerant.

One curious circumstance I may mention in this place, as having come under my own observation, which is, that in obstinate headaches, when venesection has afforded little or no relief, arteriotomy has almost instantly removed the pain ; and I remember one case of incipient hydrocephalus, where the advantage was equally prompt and manifest. Blisters are of doubtful efficacy in plethoric headach occurring in youth, and are positively hurtful if applied too near the head : their only use in arterial determinations is as derivatives, and as such, they are best and safest applied to the extremities. In this form of headach the diet ought to be spare, consisting mainly of vegetables ; sub-acid fruits and refrigerant acidulous drinks may be taken : the head should be kept cool, and somewhat raised when in bed. Where the complaint precedes the *emansio mensium*, the blood may be solicited downwards by dry cupping, a hip-bath, and pediluvium ; and the resinous cathartics, in moderate doses, may also be employed. Indeed, the entire treatment of these cases is rather to be considered adjuvant than curative ; for, until Nature fulfils her new appointments in the animal economy, we ought to limit our interference to restraining inordinate action, or to aiding it when defective ; and not to attempt to direct and govern it.

But it is otherwise where arterial plethora of the brain proceeds from the suppression of some natural or habitual evacuation. When, for example, a fulness of blood in the head exists in consequence of dysmenorrhœa, or the total suppression of the catamenia, as happens in chlorosis, we are called upon to use more energetic means to restore the proper periodic function of the uterus, by removing the cause of its suppression. This cause will usually be found to consist either in general weakness of the system, or in a local debility of the uterus. In the one case we are to direct our measures towards invigorating the whole frame by whatever improves the health and gives strength to the system at large,—such as the metallic and vegetable tonics, the use of the cold bath, due regulation of all the secretions and excretions, cheerful society, and exercise in the open air, especially on horseback: walking exercise is often more prejudicial than otherwise, fatigue being thereby so easily induced. In the other instance, besides the employment of proper means to improve the general health, we are, at the same time, to have recourse to those medicines which operate more topically in strengthening the debilitated organ: those considered to possess this power are the emmenagogues. With respect to the plethoric headach occurring in

females so often at the turn of life, all that we ought to do in these cases should be strictly confined to assuaging and palliating the symptoms.

Plethoric headach, occasioned by the stoppage of bleeding haemorrhoids or habitual bleeding from the nose, is often attended with a strong determination of blood to the head, and followed by serious consequences, if not prevented by active measures. The headach is severe, the countenance flushed, the pulse full and accelerated, the head is hot, the tongue loaded with a yellowish brown fur, and a throbbing noise is heard in the ears. These are cases which both require and bear immediate depletion; and the preferable method of performing it is by cupping at the nape of the neck. The more powerful of the drastic purgatives are to be employed, such as scammony, colocynth, gamboge, elaterium, croton oil, or the acetate of veratria; and acid refrigerants, and other antiphlogistic means controlling vascular action, are to be put in use. Such spontaneous haemorrhages are always to be regarded as dangerous habits of the system; but as it would be no less dangerous to put a stop to an evacuation, though morbid in its nature, without instituting another as a substitute, it is advisable in all such cases to make an issue in some convenient part.

The above remarks apply no less forcibly to the sudden healing up of old ulcers, and to the fading and disappearance of eruptions of long standing, either of their own accord or through improper treatment. I lately met with a case of constant, severe headache arising from the healing up of an old ulcer on the ankle, which was completely removed by inserting a seton in the back of the neck. I have also known obstinate headaches completely removed by the spontaneous breaking out of an eruption on some part of the body; and whenever they are occasioned by the sudden disappearance or repulsion of an outstriking, the most judicious treatment we can adopt is to reproduce it as speedily as possible.

Headaches occurring in full, plethoric habits, where the constitution has not suffered from previous excesses—where, in fact, the fulness of blood has been the consequence of full living, producing obesity, and with it indolence and inactivity,—headaches having such an origin, admit only of moderate depletion by the lancet: for though there undoubtedly is, in these cases, considerable arterial plethora, yet venous plethora, the more dangerous of the two, prevails at the same time, which is sure to be increased by excessive depletion. The fulness of the vascular system is much more safely reduced by the use of

active purgatives. Catharsis abstracts only the watery serosity from the blood, and not the red particles; it is therefore a more desirable means, in certain diseases, of lessening the quantity of fluid in the circulation, than the more direct method of venesection, and particularly in plethora. Plethora is essentially a disease of debility, and therefore does not bear bleeding well; indeed, in no condition of the system is fainting so readily induced from the loss of even a small quantity of blood: besides, the abstracting of blood seems to have no effect in checking the disposition to elaborate it in excess; on the contrary, it appears to favour it; for we find that when being bled has become a habit, blood seems to be more quickly regenerated in proportion to the frequency of its abstraction; and for this reason it is, that cupping on the nape of the neck, as often as a fulness of blood is felt in the head, is so prejudicial. But this objection does not apply to the use of cathartics considered as evacuants, which do not impoverish the blood to any extent: it seems probable, on the contrary, that though they lessen its quantity, they enrich its quality. Blood may even be rendered exceedingly viscid by excessive purging, as we had numerous opportunities of witnessing in the fatal form of cholera which lately prevailed. Inde-

pendently of cathartics acting as powerful evacuants, they exert a strong derivative influence, particularly on the head. It is a law of the animal economy, that when two actions differing from each other are set up in the same tissue, even though distinct, they cannot go on simultaneously, without more or less interrupting each other; and this law also applies, although not so forcibly, even when the tissues are not identical.

As an *external* means of cure, the principle we speak of is known by the name of counter-irritation; *internally*, on the other hand, we acknowledge the same fact under the name of derivation. Now, inasmuch as the bowels act upon the head through sympathy, so also they operate on the brain by derivation; and the manner of explaining the *modus agendi* is not difficult: for it amounts to an almost mechanical consequence, that if the afflux of fluids be increased in one set of vessels, the afflux into other parts of the system will be proportionally diminished; and, therefore, if the afflux of the blood be by means of purgation directed down the aorta, it will necessarily be lessened in its determination to the head. It is in this manner that we can satisfactorily account for the benefit derived from freely operating on the bowels in

all rushes of blood to the head, or congestions within it—an effect of purgation, be it remembered, which is apart from its use as an evacuant. I have spoken of the nicety required in determining the quantity of blood to be drawn in those mixed cases in which both arterial and venous plethora exist; and the remark will extend with equal propriety to the treatment of apoplexy. The difference observable in cases of this latter disease, in the nature and degree of the congestion, and in the degree of strength which the constitution of the patient possesses, must regulate the practice proper to be adopted ; and, perhaps, under no circumstances are great discrimination and experience more requisite, than in determining to what extent the loss of blood ought to be carried. I have seen many instances where one injudicious bleeding has appeared to counteract all the means previously employed, and which had promised a safe issue to the malady. When bleeding in such cases is improperly had recourse to, or has been repeated once too often, serous effusion into the ventricles is almost the inevitable consequence.

#### IV. OF RHEUMATIC HEADACH.

RHEUMATIC headach differs from the preceding kinds, in several characteristic particulars: first, in the cause; secondly, in the nature and duration of the pain; and, lastly, in the part affected. Rheumatic headach invariably proceeds from exposure of the head to cold: the pain, though severe, is aching and heavy; it will continue for several days together fixed in the same place, and it is always worse at night: but there is no determination of blood to the head; the temporal arteries do not throb, and if their pulsations aggravate the pain, it is not through any inordinate force or activity they possess; and the anatomical seat of the disease will invariably be found to confine itself to the aponeurosis covering either the temporal or occipito-frontalis muscle. In rheumatic headach the head is not hot, but, on the contrary, a feeling of cold is experienced in the part; and the complaint will not unfre-

quently affect the tunica albuginea of the eye,\* and, by extension, attack the tunica sclerotica. This constitutes the rheumatic ophthalmia of oculists, and requires, in my opinion, a different treatment from that which is usually recommended. Both rheumatic headach and rheumatic ophthalmia confine their attacks to those who have already suffered from rheumatism in some form; those subject to the one are liable to the other; and both are produced by the very same causes which occasion rheumatism in general. For example, sitting under an open skylight with the head uncovered, or keeping the hat off in a cold room when the head is in a state of perspiration; washing the head, when in the same state, with cold water; exposing the head to a draft of cold, damp wind, by riding in a carriage with the windows down; and the like. When the cold falls on any particular spot of the head, there the chief pain is felt: for instance, if from sitting directly under an open skylight, the

\* The tunica albuginea is formed, as every anatomist knows, by the expansion of the *tendinous* extremities of the muscles moving the eye. This is one of a multitude of facts exemplifying how intimately, I would say inseparably, identity of tissue is connected with identity of morbid action; and is the pathological principle constituting the basis on which the Author has founded the new classification of diseases, in his *Synopsis of Nosology*.

pain attacks the crown of the head ; when the cold current of air comes in contact with the side of the head, hemicrania, as it is called, is produced ; and falling directly on the eye, rheumatic scleritis is the consequence. This latter is the acute form of the disease ; but I may merely mention in this place, that there is a sub-acute variety of this affection, in which, from exposure to a cold and damp easterly wind, a rheumatic pain is caused in the ball of the eye, unattended with vascular inflammation or redness. This affection, if frequently recurring, almost certainly renders vision imperfect and obscure. Mercurial rheumatism is another form of this disease, and one of the most obstinate.

Rheumatic headach is never a dangerous affection, although the same cannot be averred of rheumatic ophthalmia, so far as the safety of the eye is concerned. It would be out of place in this treatise to occupy the reader's attention with the treatment of rheumatic ophthalmia ; but the method of cure for rheumatic headach is identical with that which ought to be pursued in the treatment of sub-acute rheumatism in general. Nothing is more essential than keeping the head warm, so as to reproduce the insensible perspiration checked by the exciting cause ; and other remedial means are to be put in use with the

same intention, such as the warm bath, Dover's powder, and other diaphoretics. Topical applications are particularly useful in this variety of rheumatism, from the superficial seat of the disease; of these the warm and anodyne embrocations are the best. I have met with several cases which have been speedily relieved by the oleum nigrum, as it used to be called: the preparations of colchicum also are of great service, as well as its active principle, veratria.

## V. OF ARTHRITIC HEADACH.

GOUT affecting the head is one of the most dangerous forms of the disease, and shews itself either as arthritic headache, or as arthritic apoplexy; indeed, the one is the usual precursor of the other. The first is a disease that often escapes detection, especially if the patient has never had a paroxysm of the gout in its regular form: the symptoms are imputed to a common determination of blood to the brain, and treated accordingly; but this is a mistake of a serious nature, since, in the treatment of gout affecting the organ, all depletory measures are hurtful. Hence it is a disease frequently requiring both considerable discrimination and close observation to detect, as it is only by apparently trivial distinctions that we are enabled to determine its true nature. This form of the disease affects, for the most part, only those in whom gout does not make a demonstration in the open and regular way. It is most frequently to be met with among the higher classes of the community, where this heir-loom of luxury can frequently

claim lineal descent on the part of both parents ; and it is likewise found in this disguised form prevailing more among the females of a gouty family than the males, and shews itself particularly after a certain period of life. The most pathognomonic of the symptoms characterising arthritic headach are, a constant sense of fulness in the head, liable to change, from casual circumstances, into severe pain ; much giddiness, and a feeling of movement within the head which keeps continually attracting attention to the sensation, rendering thought confused and memory forgetful ; and at the same time there is often a feeling experienced by the patient as if he were to become insensible : when he stoops, he is apt to be seized with temporary blindness ; his hearing is inordinately acute, he is distracted by the least noise, and he is frequently troubled with a constant buzzing in his ears ; flushing and heat pass at times over the head and face, the capillitum is often tender to the touch, and the head feels constantly hot and uncomfortable ; digestion is often much disordered, the bowels slow, and the evacuations discoloured ; the urine is usually scanty, high-coloured, depositing a reddish sediment ; and yet, in the midst of so much disordered feeling and function, the pulse, for the most part, remains undisturbed.

The above are the symptoms most characteristic of this specific form of headach, and which, if not removed, are sure to terminate in arthritic apoplexy.

And now a few words as to the treatment. I have already noticed the impropriety of much depletion in this variety of headach; and the injurious effects resulting from the practice is one of the circumstances which ought to be taken as indicative of its true nature, by any one inadvertently making the mistake. As the most efficacious palliative in any extraordinary urgency of symptoms, we are to have recourse to colchicum, taking care to direct its operation gently on the bowels, by the addition of some sulphate of magnesia; the circulation ought likewise to be solicited to the feet by means of a pediluvium, made stimulant by a table-spoonful or two of mustard flour; and a gentle diaphoresis brought out on the surface by James's powder taken in white wine whey, or some other mild sudorific. But there is an effect produced by colchicum, besides its anodyne operation, that involves certain pathological questions respecting the real nature of gout, which have not been hitherto satisfactorily elucidated—I allude to the effect which colchicum has of augmenting *the quantity of uric acid in the urine*. There are

various circumstances which prove that this acid superabounds in the blood of gouty people; the result, as I conceive, of a morbid condition of the function of sanguification, or rather, perhaps, of the immediate preparatory process of chylification. Now, Chelius of Heidelberg has ascertained that the quantity of uric acid excreted by the kidneys is nearly doubled in twelve days under the use of colchicum.

Another curious circumstance which presents itself in the consideration of this subject is that *topi*, or gouty chalk-stones, as they are more commonly called, do not consist, as was once imagined, of phosphate of lime, but of *urate* of lime. I may further notice, that in the decline of every fit of the gout, *uric acid* is always observed to abound in the urine of the patient; and in conclusion I may remark, that the use of alkalis and other antacids has an evident influence in diminishing the formation of uric acid; while they are found, at the same time, to be among the best preventives of gout. Now, the probable inference from all the foregoing facts is, that gout is in reality occasioned by the superabundance of this acid or its principles in the blood, generated in the intestines by an unhealthy process of digestion, induced by habits of luxury and indulgence; or it proceeds from the same cause,

in consequence of the same morbid habit of the digestive organs of a hereditary nature. May not the phenomena of a fit of the gout, therefore, be considered as arising from this excess; and the deposition of it in the form of chalk-stones, and its excretion by the kidneys, be regarded as modes of the salutary crisis?

The above considerations, if well founded, teach us, that though it may be proper to assist Nature in her effort to accomplish her purpose during the fit, still, in the systematic treatment of gout, our paramount object ought to be to prevent its accession, by counteracting the cause—excess of uric acid. Colchicum evacuates it, according to Chelius; and the alkalis prevent its formation.

## VI. OF HEADACH FROM MORBID LESION OF THE BRAIN.

It were leaving the subject of headachs incomplete, did I not notice those which proceed from disorganisation of the brain. It is by far too copious a subject to enter into so fully as I would wish: I must therefore content myself with simply pointing out those kinds of lesion that are of most common occurrence.

In the various kinds of headach of which we have hitherto treated, it will be observed that the causes producing them operate only at intervals, the complaint not being continued, but recurring occasionally. But in those we are now to notice the pain is much more constant, and originates in causes more dangerous in their nature and more difficult to remove. Among these may be enumerated, insidious inflammatory action going on in some spot of the brain, terminating either in disorganisation of its substance by cancer, softening (*ramollissement*), the formation of tubercles, suppuration, or abscess—morbid thickening, consolidation or exostosis of the cranial parietes—caries affecting the bones of the

head—or ossification of some part of the membranes or vessels of the brain. Willis relates a case of obstinate hemicrania of the left side which ended fatally. On opening the head, the right carotid was found so much ossified as almost to warrant the term “petrified” in describing it: the blood being thus excluded from the right side of the head was necessarily thrown on the opposite.

Cancer of the brain, fungous and other tumours formed in its substance, and osseous tumours formed on the internal surface of its parietes, are likewise often fatal causes of obstinate headaches.

Cancer of the brain has been accurately described by M. Rostan; and is distinguished from the other diseases affecting the head by the pain being lancinating, having accessions and intervals, and being confined to the same spot. The pain is often so acute and violent as to cause the patient to cry out, and the head feels as if it would split. The attacks are at first infrequent, and some months will intervene between them, during which the patient is free from pain: as the disease advances, their intermission is shortened, till they become daily and almost continued. At length palsy, convulsions, epilepsy, mania, and idiotism, supervene in succession, when death

puts an end to the scene. Ere this takes place the paralysed limbs are the seat of acute lancinating pains, and the whole surface of the skin assumes that peculiar straw colour which characterises cancerous affections.

When fungous tumours form on the dura mater, they likewise give rise to obstinate and lancinating pains in the head; but this disease is to be distinguished from the preceding by its not being accompanied with paralysis of the limbs, nor by any of those symptoms which indicate compression on the brain. Hence it becomes difficult to distinguish the true nature at its commencement: indeed, Boyer positively asserts, that before the appearance of the tumour externally, there is no symptom so pathognomonic by which it can be known.

Tubercles in the brain is another of those diseases which it is difficult to designate with certainty during life. Its more particular symptoms are excruciating headaches and obstinate vomitings: its more general are great debility, vertigo, and the impossibility of bearing the upright posture. M. Chomel relates an interesting case in the *Journal de Médecine* (Mars 1818), of obstinate vomiting proceeding from the head, without the stomach being at all diseased. A slight pain was at first felt in the back part of the head, which by

degrees became more intense, and extended to the forehead : this was accompanied by loss of appetite, pain at the pit of the stomach, and constant vomitings. No treatment was of any avail ; and the patient expired after having suffered excruciating pain for five months. On examining the stomach, nothing particular presented itself ; but on opening the head, between thirty and forty small round bodies were found in the brain, having much resemblance in colour, size, and consistence, to the crystalline lens.

The sympathy between the brain and first passages is never more strongly exemplified than in the disorder induced in all the functions of the latter by any lesion affecting the former ; and the case I have just stated affords a striking illustration of it. Concussion of the brain by a blow, or from a fall, is instantly followed by sickness at stomach, if the patient be not stunned to insensibility ; and in all idiopathic fevers, of which the brain is so often the principal seat, we find crudities and sordes generated in the first passages as soon as the disease is fully formed ; and the whole line of function is disordered — the tongue is dry and parched — thirst prevails — there is prostration of appetite, sickness at stomach, and constipation.

Ulceration of some part of the stomach is

always accompanied with violent headachs. There are numerous cases of this sort on record ; and none more eminent than the case of Buonaparte.

Organic lesion of the brain sometimes gives rise to a headache which intermits. There is an interesting case of this kind (related in the *Transactions of the Medical and Chirurgical Society of Edinburgh*), which was found, on post-obit examination, to have arisen from a tumour in the cerebellum. The headache returned regularly every eighth day, and lasted from five to twelve hours, after which the child usually fell asleep, and awoke quite lively and free from pain. But headaches sometimes are found intermittent without any disorganisation going on in the brain. When they assume a perfect regularity in their periods of intermission, they are only anomalous forms of the morbid phenomena produced by marsh miasmata ; and what corroborates the fact of their identical nature with ague is, that the very same means are equally remedial in both complaints. Perhaps the most singular, and, at the same time, unaccountable case of periodic headache on record, is that of the well-known French author Marmontel. Marmontel suffered for seven successive years, and for fifteen days each year, and four hours each day, with a supra-orbital headache. Even though some may regard this rather as a

case of tic douloureux than headach, still, the regularity and precision of its occurrence are not the less curious and inexplicable.

When osseous tumours form on the inner table of the cranium, they almost invariably proceed from syphilis, or rather its mercurial treatment ; and although pains in the head be felt during the day, they still maintain their specific character, and are always more severe during the night.

The last disease of the brain of an organic character which I shall notice, is that softening of its substance which the French writers denominate *ramollissement*. This disease is, in fact, rather the result of morbid action than a specific disease of itself, and has been regarded by some as a form of mortification, taking its peculiarity of appearance from the structure of the organ. Ramollissement not unfrequently ensues from a blow concussing the brain ; and it is surprising how rapidly this takes place in some cases. A greater or less accumulation of serosity in the cerebral cavities usually accompanies this change of consistence of the viscus : the disease is beyond the power of art to relieve, and speedy death is the certain result.

In cases arising from concussion or other external violence, little doubt can be entertained that the breaking down of the brain's consistence

is the result of local inflammatory action, and in most other instances it is produced in a similar manner ; but, at the same time, it must be admitted that cases of this disease do sometimes occur, to which no such origin or cause can be imputed.

The only chance of cure in this disease is in the first instance, before disorganisation has begun ; and this is to be attempted by bleedings, both topical and general, by derivatives acting powerfully on the bowels, by blistering the nucha, controlling the circulation by determining gently to the surface, by refrigerants, low diet, and quietude. This state of ramollissement of the brain often attends paralytic affections. Headach is a constant concomitant of this kind of palsy ; and it is frequently preceded by severe pains in the limbs, which are often mistaken for those of rheumatism : but when cerebral symptoms co-exist therewith, the true nature of these pains may always be suspected ; indeed they may be considered, in some degree, pathognomonic of the complaint, inasmuch as the constant headach may be deemed another diagnostic of the softening which is going on in the consistence of the brain. Convulsions are likewise apt to occur in this disease. It is from a concurrence of symptoms that the cautious physician forms his diagnosis in all

difficult cases. Headach, when circumscribed, fixed, and obstinate, is exceedingly apt to terminate in a softening of that portion of the brain which is the seat of the morbid action, and occurs most frequently to persons somewhat advanced in years: it is accompanied by giddiness, and a tingling, creeping sensation, or aching in the limbs, most commonly felt on the side of the body opposite to that of the headach. To these succeeds a paralytic seizure, in which the patient either suddenly loses the use of one entire side of the body, or the loss of power comes on gradually.

Palsy, at all times, is but the consequence of a lesion of the brain. This may either be a softening of some part of its substance (*ramollissement*), a coagulum of blood that has been extravasated, the enlargement and pressure of a cerebral tumour, or serosity effused between the membranes, or into the ventricles, of the brain. When there is a cross palsy — that is, when the upper limb of one side and the lower of the opposite are affected — it indicates lesion of both hemispheres; but these two affections are not usually simultaneous. There are some premonitory tokens of an eventual paralytic seizure, so slight, perhaps, as not to attract much attention or regard — such as, a peculiar cast in one eye,

giving it an expression somewhat different from a squint ; or a slight indistinctness and imperfection of articulation in speaking ; or a perceptible difference in the gait, of which the person himself may be wholly unconscious, proceeding from a weakness of one of the legs, and which frequently causes him to stumble—in such persons, likewise, one side of the body is sooner chilled in a cold day than the other ;—all of which signs indicate a tendency to a paralytic or apoplectic seizure at some future period, and ought to be treated as monitors not to be neglected.

It is surprising to observe to what extent disorganisation may sometimes proceed within the brain, and what injury its structure may sustain, before inducing death. The fact of the insensibility of the brain itself was known to the older writers ; and that it might be cut, punctured, lacerated, or strongly compressed, without causing pain. A curious proof in illustration of this last fact is narrated in the *Journal des Progrès*, by Pierquin. The case was one of cerebral hernia, proceeding from a syphilitic erosion of the cranium, which the author relates in the following words :—“ When seated during the dressing, we entered into a conversation with her upon some topic that might fix her attention. The moment she became engrossed and interested, the oscilla-

tory movements of the brain became at once stronger and more rapid : pressure was now applied upon the brain as strongly as possible, and in an instant the patient lost the use of all her senses, ceased to speak, terminating the conversation suddenly in the middle of a word, which she finished when we removed the compression. The same phenomena took place in regard to conversation commenced, the patient completing the phrase when the pressure on the brain ceased. These different experiments were not only unattended with the slightest pain, but were unknown to the patient, who never perceived the interruption to her intellectual existence which we occasioned at pleasure."

As examples of the extent to which disorganisation of the brain may go, before causing death, I shall quote two cases: one related by Morgagni, the other by Foderé.

A man, æt. 62, died suddenly, Morgagni tells us, in the hospital, having dined and supped as usual, previous to which he had been troubled with a violent headach for more than four months. On opening the head, the cerebellum was found to be *entirely* scirrhous, and converted into a substance of a fleshy appearance ; yet this man had preserved his voice, speech, and reason, excepting in the paroxysms of the pain.—(*Epist. lxii.*)

The other case, by Foderé, (*Traité du Crétinisme*, § 82,) is as follows:—

A young man, who had been subject for a long time to periodical vertigo, which he had neglected in consequence of being obliged to attend to his business, was brought into the hospital of Marseilles, on account of a most violent attack of his complaint, where he died suddenly. “On opening the head, I found the right hemisphere,” says Foderé, “*wholly consumed*, and its place occupied by pus. How comes it,” exclaims Foderé, with just surprise, “that this patient could survive till the disease had attained such a height, notwithstanding he had always enjoyed the full exercise of his mental faculties, and of his bodily functions, till the hour of his death?”

## RULES AND OBSERVANCES FOR THE PREVENTION OF HEADACHES.

HAVING thus concluded my observations on the varied nature and treatment of headaches, I shall now make a few remarks on the means of their prevention.

In doing this, it will be necessary to refer briefly to the different originating causes, and more especially to those which we have it most in our power either to avoid or to counteract.

I have already observed, that there are certain temperaments of the atmosphere against which we can take no effectual precautions ; but we can avoid the influence of some of these, and partially counteract that of others :—we can escape the effects of atmospheric impurity by not frequenting crowded assemblies in heated rooms ; and we can protect ourselves from the morbid influence of cold by warm clothing ; by wearing flannel next the skin, we can solicit the circulation to the periphery of the body, and keep up the perspiration ; and we can favour the same healthy function by proper exercise. Indulgence in indolent habits induces bad health, and then bad health confirms

the disposition to inactivity, through the very debility it has caused.

Excessive susceptibility of the system, as a predisposing cause of headaches, is to be subdued by adopting those means and observances which conduce to strengthen the body, and by renouncing those pursuits, habits, and occupations, which weaken it. When this morbid state of sensibility is confined to the stomach, it requires from the patient the utmost regard to regimen ; his diet should be nutritive, and yet easy of digestion ; the stomach should neither be overloaded with the quantity, nor disordered by the quality of its food ; and all salted meats, and rich and high-seasoned dishes, should be carefully avoided. When headache is not very severe, the appetite is often not materially affected : the patient can eat, though not with relish ; but if he do so, the consequence, frequently, is a great aggravation of the pain ; and this will appear almost a necessary consequence, if we give the matter a moment's consideration. Here we have the stomach disordered, and therefore weakened in its proper functional powers ; and yet in this morbid condition it is loaded with food to digest, thus inevitably aggravating the evil by adding further cause of derangement.

There is no more common cause of headache

in the dyspeptic, than that of loading the stomach with something indigestible just before going to bed. All the functions, except the perspiratory, are more or less suspended, even in health, during sleep; and this is more especially the case in the first processes of digestion. Food, therefore, taken into the stomach of a person of weak digestion immediately before retiring to rest, lodges there during the greater part of the night, very little altered: thus acting as an irritant for so many hours on an organ already too sensible, can we then wonder that the patient should awake in the morning with a headach? But it frequently happens that the change the food has undergone during sleep, is not merely imperfect in its kind, but unhealthy, likewise, in its nature —the crudity generated by the morbid process usually abounds with acidity. Spirituous liquors taken on an empty stomach, before going to bed, even though not immoderately, are no less certain to disorder a morbidly sensible stomach, and occasion headach next day.

“*Satiusque est abstinere a cibo; si fieri potest, etiam a potione; si non potest, aquam bibere,*” was one of the curative injunctions of Celsus, and it applies (as far as suppers are concerned) no less judiciously as a preventive of headachs. The beautiful lines of Armstrong on this subject

deserve a place in the tablets of every one liable to sick headache:—

“ Or would you sweetly waste the blank of night  
In deep oblivion ; or on fancy’s wings  
Visit the paradise of happy dreams,  
And waken cheerful as the lively morn ;  
Oppress not nature, sinking down to rest,  
With feasts too late, too solid, or too full.”

But, while eating too late in the day is so frequently a cause of headache, fasting too long is often not the less so. As the customs of society are at present regulated, dining about noon is now obsolete, although there cannot be a doubt that the hour indicated by natural appetite is at this period of the day. I would therefore recommend those of weak digestion; who cannot conveniently conform to this in appearance, to do so, nevertheless, in reality—let their luncheon purposely and literally spoil their dinner. The direction of eating “ little and often” is more specious than judicious, as an axiom of health: part of the rule may pass uncensured—that which relates to the “ little,” for all of us eat much more than is necessary for health; but with respect to eating frequently, even though sparingly, it is most injudicious; for by doing so, you allow the stomach no rest. The ordinary time requisite for the completion of digestion is

from four to five hours, and we evidently ought not to eat more frequently than this ; if we do, we keep the organs performing the different processes of digestion in a perpetual round of action. Instead, therefore, of recommending one with an enfeebled stomach to eat “ little and often,” I am confident the better advice would be to substitute the word “ seldom ” for “ often.” It is a very absurd, and yet a very prevalent popular idea, that because you are weak you must eat. Where the body is debilitated, and the stomach, notwithstanding, strong, this rule, under limitation, may, at times, apply properly enough : but is it not intuitively obvious, that, where the digestive organs themselves are weak, and the weakened condition of these organs is the very cause of general debility, no dietetic rule more preposterous in principle could well be devised to frustrate its object, than that of imposing on the stomach a task which its strength is unequal to perform ? In fact, it is a rule which, whenever adopted, counteracts its own purpose ; since the food that the stomach, from its weakness, cannot convert into nutriment, becomes an extraneous matter, and, by operating as a source of irritation, only aggravates the local disorder, and therefore perpetuates the general debility.

Another observance, preventive of headach, is

that of rising early in the morning. A very common cause of headach is that of lying later in bed than usual. As soon as the brain is thoroughly awake it is time to rise; otherwise thought gets active and the body restless; all intense thinking when the head is recumbent occasions cerebral congestion, and thus induces headach. But, on the other hand, a little additional rest is often the means of preventing a headach from ensuing, or it will sometimes prove the means of carrying it off, if it has been occasioned by previous excessive fatigue, late hours, or casual intemperance: but in such cases the pain is not excited by any intensity of thought, while it regains tone and gets refreshed by the extra indulgence. Whereas, when headachs originate from a morbid condition of the digestive functions, or general nervous debility, then the avoiding crowded assemblies and late hours, and the rising betimes in the morning, are essentially necessary towards their cure. Nervous debility is always accompanied by great general languor, and an unwillingness to get up in the mornings; but this reluctance must be combated, for it will be perpetuated by indulgence.

When headach arises, as it so frequently does, from habitual constipation, this state of the bowels requires great discretion in the employment of aperients for removing it; for when these

are properly chosen, their beneficial operation is not limited merely to that of evacuating the bowels. Aperients have a powerful effect in correcting the morbid state of the different secreting organs that pour their fluids into the intestinal canal; and it is by effecting this wholesome alteration, and by stimulating the bowels at the same time to regular action, that digestion becomes natural, and hence nutritive. It is obvious, that if digestion be imperfectly performed, much of the food intended to nourish the body will be passed off as feculent. Gentle purgation, therefore, by correcting the disordered state of the intestinal fluids, indirectly proves a tonic of the most efficacious kind. This beneficial change is observable in the disappearance of the thick and foul coating on the tongue—in the improvement of the appetite—in the more natural appearance of the evacuations; and, lastly, in the more ready obedience of the bowels to the influence of diminished and diminishing doses of the aperient used. I have known horse-exercise to succeed in succouring and rendering efficient the above means, when all others had failed.

Among other circumstances conduced to health is the proper regimen of the mind. The influence which the mind and body reciprocally exert on each other, forms that interesting depart-

ment of medical science which may properly be termed "medical metaphysics." To this reciprocity is to be attributed the wholesome effect of change of scene and occupation; since it usually obliges us to renounce those very habits which have given rise to our complaints, by breaking asunder the chain of associations which we so often feel irresistibly binding us to pursuits we are conscious are injurious to our health, and which we can only forsake by flying from the sphere of their influence. Diseased states, both of the stomach and head, are frequently brought on by the particular habits and avocations of individuals, when men, in the pursuit of wealth or of pleasure, disregarding the institutes of nature, contract diseases through the imprudent deviation. The tendency of all strong mental excitement, or corporeal exertions, if continued for any length of time, or too frequently repeated, is to throw the blood with increased impetus to the head, and thus to lay the foundation for headach from fulness of blood in the brain. The preventive rule in all such cases is for the professional man to relax the tension of his thoughts, the man of business to forget for a time the anxieties attendant on the Sisypoid toil of amassing wealth, and the votary of Pleasure to forsake her haunts. But relaxation of mind does not by any means imply its total

inactivity. The mind, no more than the body, can remain wholly indolent without injuring itself; but its occupation, under the circumstances alluded to, should be light, pleasing, and varied. Hence it is that travelling is so conducive to health, chiefly from its agreeable incentives to bodily exercise, combined with the pleasurable excitement which the mind receives in contemplating new objects; and it is thus that the mutual morbid sympathies of mind and body are counteracted in the most antithetic way by others reciprocally healthy.

THE END.

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